AGENDA
CITY OF MAPLEWOOD
ENVIRONMENTAL AND NATURAL RESOURCES COMMISSION

Wednesday, March 11, 2026
6:00 p.m.
Maplewood City Council Chambers
1803 County Road B East

1. Call to Order
2. Roll Call
3. Approval of Agenda
4. Approval of Minutes
    a. January 14, 2026
    b. February 11, 2026
5. New Business
    a. Draft Climate Mitigation Plan
        1) Review Draft Climate Mitigation Plan Presentation
        2) Open Meeting to Public Comment
        3) Offer Feedback on Draft Climate Mitigation Plan
6. Unfinished Business
7. Visitor Presentations
8. Commissioner Presentations
9. Staff Presentations (oral reports)
    a. City Programs and Events
        1) Bluebird Monitoring – March 19, 7 to 8:30 p.m., Maplewood Nature Center
        2) Spring Clean Up – April 25, 8 a.m. to 1 p.m., Aldrich Arena
        3) Waterfest – May 30, 11 a.m. to 4 p.m., Phalen Lakeside Activity Center
    b. Environmental and Natural Resources Commission Calendar
10. Adjourn

MINUTES
CITY OF MAPLEWOOD
ENVIRONMENTAL AND NATURAL RESOURCES COMMISSION
Wednesday, January 14, 2026
6:00 P.M.

1. CALL TO ORDER

Chairperson Lates called a meeting of the Environmental and Natural Resources Commission to order at 6:04 p.m.

2. ROLL CALL

Rebecca Bryan, Commissioner	Present
Joanne Cryer, Commissioner	Present (at 6:10 p.m.)
Benjamin Guell, Commissioner	Absent
David Lates, Chairperson	Present
Ted Redmond, Commissioner	Present
Wes Saunders-Pearce, Commissioner	Present

Staff Present

Shann Finwall, Sustainability Coordinator

3. APPROVAL OF AGENDA

Chairperson Lates moved to approve the agenda.

Seconded by Commissioner Saunders-Pearce. Ayes – All

The motion passed.

4. APPROVAL OF MINUTES

a. November 12, 2025

Commissioner Lates moved to approve the November 12, 2025, Environmental and Natural Resources Commission meeting minutes as written.

Seconded by Commissioner Saunders-Pearce. Ayes – Commissioners Bryan, Lates, Saunders-Pearce

Abstain – Commission Redmond

The motion passed.

5. NEW BUSINESS

a. Election of Chair and Vice Chair

Commissioner Bryan made a motion to nominate Commissioner Saunders-Pearce to serve as Chairperson.

Seconded by Commissioner Lates. Ayes-All

Commissioner Lates made a motion to nominate Commissioner Cryer to serve as Vice-Chairperson.

Seconded by Commissioner Bryan. Ayes-All

Newly elected Chair, Saunders-Pearce suggests that Commissioner Lates chair the remainder of the meeting. Commissioner Lates accepted.

b. 2026 Work Plan and Environmental Priorities

Shann Finwall, Sustainability Coordinator, introduced the subject.

The Environmental and Natural Resources Commission was supportive of the work plan and environmental priorities presented by staff. Following are comments and feedback:

- Outside tours should be limited to one this year.
- Consider inviting the Center for Energy and Environment to speak at an upcoming Commission meeting.
- The Commission should continue the stormwater management policy review.
- Review options for sustainability interns.
- The Commission should focus closely on implementation of the Climate Mitigation Plan action items once approved by the City Council.
- The Commission should review the City's calendar of events for educational outreach opportunities.

Staff will summarize the discussion next month and make recommendations for implementation.

6. UNFINISHED BUSINESS

7. VISITOR PRESENTATIONS

None

8. COMMISSIONER PRESENTATIONS

None

9. STAFF PRESENTATIONS

Shann Finwall, Sustainability Coordinator, updated the Environmental and Natural Resources Commission on the following:

a. November 24, 2025, City Council Meeting - Church of Pentecost, 1701 Gervais Avenue, Wetland Buffer Variance

The proposed land use permits for the church expansion, including the wetland buffer variance, were approved by the City Council on November 24.

b. Board and Commission Appreciation Dinner – Thursday, February 5, 2026, 5:00 to 6:30 p.m., North Fire Station, 1530 County Road C East

c. Environmental and Natural Resources Commission Calendar

10. ADJOURNMENT

Chair Lates adjourned the meeting at 6:54 p.m.

MINUTES
CITY OF MAPLEWOOD
ENVIRONMENTAL AND NATURAL RESOURCES COMMISSION
Wednesday, February 11, 2026
6:00 P.M.

1. CALL TO ORDER

Chairperson Saunders-Pearce called a meeting of the Environmental and Natural Resources Commission to order at 6:05 p.m.

2. ROLL CALL

Rebecca Bryan, Commissioner	Present
Joanne Cryer, Vice-Chairperson	Present
Benjamin Guell, Commissioner	Present
David Lates, Commissioner	Absent
Ted Redmond, Commissioner	Absent
Wes Saunders-Pearce, Chairperson	Present

Staff Present

Shann Finwall, Sustainability Coordinator
Jon Jarosch, Assistant City Engineer

3. APPROVAL OF AGENDA

Chairperson Saunders-Pearce moved to approve the agenda.

Seconded by Commissioner Bryan. Ayes – All

The motion passed.

4. APPROVAL OF MINUTES

a. January 14, 2026

The January 14, 2026, minutes were tabled until the February 11, 2026, Environmental and Natural Resources (ENR) Commission meeting.

5. NEW BUSINESS

a. Maplewood Stormwater Management

Shann Finwall, Sustainability Coordinator, introduced the subject.

Jon Jarosch, Maplewood Assistant City Engineer, and Nicole Maras, Ramsey-Washington Metro Watershed District (RWMWD) Regulatory Program Manager reviewed and presented Maplewood's stormwater management policies, the 2026 street project, and how the two organizations coordinate stormwater best management strategies to ensure our surface waters are protected.

The Environmental and Natural Resources Commission had the following questions and comments:

- The City and watershed district should consider requiring or encouraging stormwater best management practices including Chloride reduction for the trails located in the wetland buffer at the new Century Ponds development. Ms. Maras stated Chloride reduction is a high priority for the watershed district board. The City and the watershed district will work with the developer on Chloride reduction strategies.
- Has Maplewood applied for the watershed district's street sweeping grant? Assistant City Engineer Jarosch stated the City will be pursuing that grant this year.
- The ENR Commission should focus their environmental education and outreach on smart salting techniques. Ms. Maras stated the watershed district started a campaign called "get gritty" that the Commission could help promote. Assistant City Engineer Jarosch added that the City is required to education on the impacts of pet waste on our waters.
- The ENR Commission asked for ideas on stormwater management tours. It was determined that a tour of Aldrich Arena, Frost Avenue Street reconstruction, and Wakefield Park areas would spotlight stormwater management best practices implemented by the watershed district and the City.

6. UNFINISHED BUSINESS

a. 2026 Work Plan and Environmental Priorities Implementation Strategies

Shann Finwall, Sustainability Coordinator, introduced the subject.

The Environmental and Natural Resources Commission made the following comment:

- In addition to the Work Plan items, the ENR Commission should focus on stormwater management education and outreach at events.

The Work Plan and Environmental Priorities will be included in the ENR Commission's annual report to the City Council.

7. VISITOR PRESENTATIONS

None

8. COMMISSIONER PRESENTATIONS

None

9. STAFF PRESENTATIONS

Shann Finwall, Sustainability Coordinator, updated the Environmental and Natural Resources Commission on the following:

a. City Programs and Events

1) Arbor Day Tree Sale – March 2 Ordering Begins, May 15 and 18 Pick Up Trees
2) Edgerton Community Garden Registration – February 24 for Returning Gardeners and March 16 for New Gardeners
3) State of Maplewood – March 10, 9 to 10:30 a.m., Maplewood YMCA Community Center
4) Bluebird Monitoring – March 19, 7 to 8:30 p.m., Maplewood Nature Center
5) Spring Clean Up – April 25, 8 a.m. to 1 p.m., Aldrich Arena

b. Reschedule November 11, 2026, ENR Commission Meeting due to Veteran's Day Holiday (suggested dates Tuesday, November 10 or Monday, November 16)

c. Environmental and Natural Resources Commission Calendar

10. ADJOURNMENT

Chairperson Saunders-Pearce adjourned the meeting at 7:37 p.m.

ENVIRONMENTAL & NATURAL RESOURCES COMMISSION STAFF REPORT
Meeting Date March 11, 2026

REPORT TO:	Environmental and Natural Resources Commission
REPORT FROM:	Shann Finwall, AICP, Sustainability Coordinator
PRESENTER:	Shann Finwall, AICP, Sustainability Coordinator
AGENDA ITEM:	Draft Climate Mitigation Plan

Action Requested: ☐ Motion ✓ Discussion ☐ Public Hearing
Form of Action: ☐ Resolution ☐ Ordinance ☐ Contract/Agreement ☐ Proclamation

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Summary:

Maplewood's Climate Mitigation Plan outlines strategies and actions to reduce community-wide greenhouse gas emissions and guide City efforts toward established reduction goals.

Recommended Action:

Review and offer feedback on the draft Climate Mitigation Plan. Open the meeting to public input.

Fiscal Impact:

Is There a Fiscal Impact? ✓ No ☐ Yes, the true or estimated cost is $0
Financing source(s): ☐ Adopted Budget ☐ Budget Modification ☐ New Revenue Source ☐ Use of Reserves ☐ Other:

Strategic Plan Relevance:

✓ Safety ◊ Focus Area: Foster community engagement and support resident well-being
✓ Sustainability ◊ Focus Area: Advance environmental stewardship initiatives
✓ Development ◊ Focus Area: Invest in people and placemaking

The Climate Mitigation Plan planning process was collaborative, rooted in a multi-stakeholder planning team. The plan focuses on transportation, buildings and energy, and waste management, providing a clear roadmap to advance sustainability and strengthen long-term community resilience.

Background:

The City first adopted greenhouse gas reduction goals in its 2040 Comprehensive Plan, aligned with Minnesota's climate targets at the time. Since then, updated science-based goals adopted by the State, Metropolitan Council, and Ramsey County call for net zero emissions by 2050.

A Climate Mitigation Plan is the critical and final piece needed in the City's climate resilience planning and will address a key implementation strategy of the City's Climate Adaptation Plan. The Climate Mitigation Plan will provide a roadmap for achieving meaningful emission reductions through 2035 in support of that long-term vision.

Process

The City of Maplewood has hired climate and energy consultant paleBluedot LLC to assist with the creation of a Climate Mitigation Plan. The Climate Mitigation Plan will serve as a compliment to the 2021 Climate Adaptation Plan by guiding the City toward reduced emissions. Phase one of the project took place in 2023 when the City conducted climate mitigation education and outreach at various events. The outreach included the creation of a climate mitigation survey.

During the second phase of the project paleBluedot LLC assisted the City in the following:

- Analyze GHG Emissions
- Recommend GHG Emission Reduction Targets
- Forecast GHG Emission Reductions
- Organize a Collaborative, Multi-stakeholder Planning Team
- Draft Climate Mitigation Plan

Phase three began in 2024 with the formation of a voluntary Climate Mitigation Plan Team composed of residents, business owners, and representatives from City Commissions and Boards. The original Team included 22 members worked collaboratively to draft goals and actions aimed at reducing greenhouse gas emissions both within City operations and community-wide.

Last year, the CMP process was paused while the City Council updated the City's strategic priorities. This pause ensured that the draft goals and actions developed through the Team's collaborative work aligned with the newly established priorities. The intent was to focus energy and resources effectively, strengthen internal operations, and ensure that employees and stakeholders were working toward shared objectives that support the City's long-term strategic direction.

Next Steps

With the strategic priorities now approved, City staff and paleBluedot LLC have completed an in-depth review of the draft goals and actions and incorporated them into a full draft Climate Mitigation Plan which focuses on City and Community-Wide GHG reduction strategies in the following categories:

- Buildings and Energy use
- Transportation
- Waste Management

The remaining members of the Climate Mitigation Team reconvened on January 22, 2026, to review the draft plan and formally conclude their participation in the process. The next steps include a public comment period and review of the draft plan by the Environmental and Natural Resources Commission and the Parks and Natural Resources Commission. After these reviews, the draft and final plan will be presented to the City Council for consideration.

Draft Plan Review

Ted Redmond, Co-Founder of paleBLUEdot, will be present during the March 11, 2026, Environmental and Natural Resources Commission meeting to present the draft plan. Members of the public have been invited to learn more and share their input during the meeting.

Attachments:

Draft Climate Mitigation Plan

Maplewood MINNESOTA

Climate Mitigation Plan

DRAFT

February, 2026

Table of Contents

Maplewood MINNESOTA

Climate Mitigation Plan

Purpose

To guide community-wide GHG reductions through 2036 in alignment with goals established by:

State of Minnesota

Metropolitan Council

Ramsey County

Process

The plan was developed in 5 steps:

Context: 4 baseline research documents

Community: 175+ community members engaged

Collaboration: planning team with 22 volunteers

Calibration: detailed city staff plan refinement

Completion: based on public draft plan review

Plan

The plan guides action through:

3 Sectors of GHG reduction

14 Strategies to achieve goals

55 Actions + Partnership Opportunities outlining steps over a

10 Year Timeframe:

Transportation and Land Use

5 Strategies
15 Actions

Click here for section

Buildings and Energy

6 Strategies
22 Actions

Click here for section

Waste Management

3 Strategies
18 Actions

Click here for section

Maplewood Climate Mitigation Plan

CURRENTLY IN MAPLEWOOD (2022)

410,374
Metric tons of greenhouse gas (GHG) emissions citywide

206,788
Metric tons GHG from transportation

194,396
Metric tons GHG from buildings

6,935
Metric tons GHG from solid waste

2,255
Metric tons GHG from water+wastewater

Introduction

Maplewood's Climate Mitigation Plan (CMP) outlines strategies, actions, and potential partnerships to reduce community-wide greenhouse gas (GHG) emissions and guide City efforts toward established reduction goals.

The City first adopted GHG reduction goals in its 2040 Comprehensive Plan, aligned with Minnesota's climate targets at the time. Since then, updated science-based goals adopted by the State, Metropolitan Council, and Ramsey County call for net zero emissions by 2050. This Plan provides a roadmap for achieving meaningful emission reductions through 2036 in support of that long-term vision.

The planning process was highly collaborative, rooted in a multi-stakeholder planning team. The plan focuses on transportation, buildings, and waste management, providing a clear roadmap to advance sustainability and strengthen long-term community resilience.

The plan builds on a strong foundation of earlier sustainability and climate action accomplishments. In 2017, the City completed a Climate Vulnerability Assessment to identify local climate risks.[1,2] These assessments were followed by a 2021 Climate Adaptation Plan that outlined strategies to address those vulnerabilities. Most recently, in 2023, Maplewood conducted outreach – including a Climate Action Survey – to engage residents and capture input on potential climate actions. These initiatives have helped establish Maplewood's climate vulnerabilities and community priorities, providing a solid groundwork for this plan. Building on what was learned, the Climate Mitigation Plan (CMP) establishes steps to reduce emissions within City of Maplewood government operations as well as community-wide.

GHG Mitigation can avoid 57,000 premature deaths in the United States annually by 2100

- United States Environmental Protection Agency [3]

Co-Benefits of Sustainability Planning

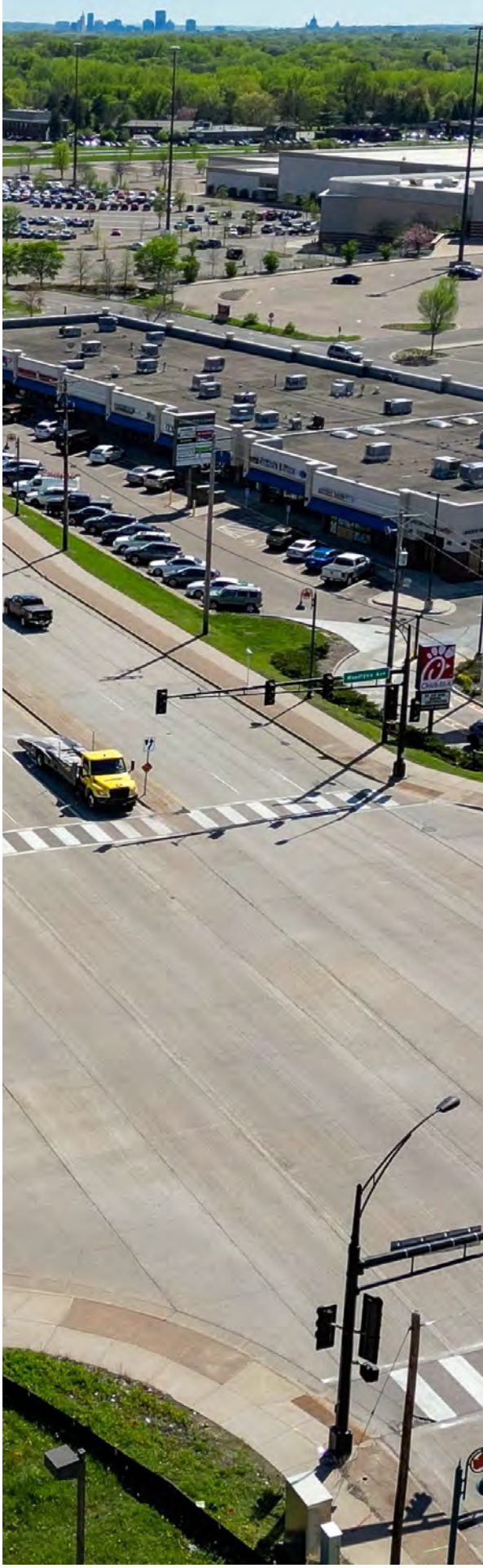
The World Health Organization reports that research consistently links sustainability and climate action to both economic savings and improved public health. Community efforts to reduce greenhouse gas emissions across housing, transportation, and energy systems deliver benefits beyond climate protection, including cleaner air, better health outcomes, reduced risks, more efficient resource use, stronger local economies, and greater resilience in both natural and built environments.[4,5,6,7] Climate mitigation plan implementation can result in financial benefits, better quality of life, and preserved natural resources.

Financial Benefits

Many climate mitigation strategies generate direct economic returns, including savings from reduced fuel consumption.[8] In addition, a number of actions produce indirect financial benefits. Studies indicate that improvements in air quality can substantially offset the costs of climate programs. Some measures also enhance resilience by lowering reliance on fossil fuels, avoiding costs of $190 or more per metric ton of greenhouse gas reductions.[9] The greatest economic potential may come from health-related benefits, with global average health co-benefits estimated at $50 to $380 per metric ton of GHG emissions reduced.[10]

Quality of Life

Climate plans are designed to enhance quality of life over the long term. Studies indicate that well-implemented climate actions can broaden transportation options, generate employment, and help reduce poverty and inequality across the community.[11]



Planning Process

The City's planning process engaged 175 community members through two public meetings and events, two online surveys, and a 22-member planning team. While this level of participation provided valuable insights and meaningful community input, it accounted for only a small share of Maplewood's total population of 40,142. As such, the feedback is not statistically representative of the entire community. The input received should therefore be understood as informative and directionally helpful, but not a statistically valid sample of citywide opinion.

24 months	175+	10	2	22	4
Planning timeframe	Community members engaged	Community meetings and events	Online community input surveys	Planning team members	Foundational research documents

The Maplewood Climate Mitigation Plan was created through a collaborative process led by a 22-member planning team representing residents, businesses, institutions, City commissioners, and Maplewood staff. The team developed, reviewed, and refined strategies and actions across all plan sectors (see *Our Plan*), meeting in a series of workshops held between July 2024 and January 2026. Community engagement was an important element of the process and included community surveys, public meetings, and outreach events. Plan goals and actions were informed by community input, in-depth City staff review, expert analysis, and best practices from peer communities in Minnesota and across the U.S. Through iterative workshops, the team evaluated and prioritized strategies, producing a co-authored plan.

Research Based Climate Mitigation Plan

To establish the plan's goals, strategies, actions, and partnership opportunities the plan consultant team conducted extensive research and produced several key assessments. These included studies on GHG emissions, and renewable, or "clean" energy potential, providing critical data on climate risks, carbon sequestration, emissions trends, and solar opportunities. A final Climate Action Baseline Study synthesized these findings, reviewed key community metrics, and outlined preliminary sector-specific goals to guide planning discussions. Click on the icons below to view these documents:

Community-Wide GHG Inventory

Community-Wide GHG Emissions Forecast

Community-Wide Renewable Energy Potential Study

Climate Action Baseline Study

Survey Responses—What We Heard

Community input was gathered through two surveys with over 150 responses from residents and businesses.[12] The first gathered climate mitigation concerns and action ideas; the second collected feedback on the draft plan. This input shaped the plan to reflect local priorities.

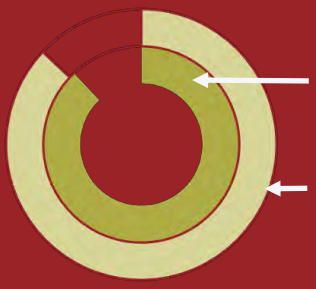
The City's Role in Climate Action

Respondents reported that they agree or strongly agree...

It is important for Maplewood to take action to reduce greenhouse gas emissions. **79%**

It is important for Maplewood to be a leader in proactively addressing climate change. **77%**

Climate Experience[13]



Survey responses on concern about climate change:[13]

Key Themes: Respondents support of example action strategies include:

Transportation
Top 3 Strategies:

Development rules to favor walkable neighborhoods | **80%**

Increasing safety for biking and walking | **68%**

Installing electric vehicle charging stations for public use | **63%**

Solid Waste
Top 3 Strategies:

Phase out plastic bags in community | **70%**

Programs to divert reusable materials | **70%**

Increased business recycling participation | **68%**

Buildings/ Energy
Top 3 Strategies:

City incentives for energy efficiency, and solar readiness| **80%**

Higher sustainability standards for new construction | **78%**

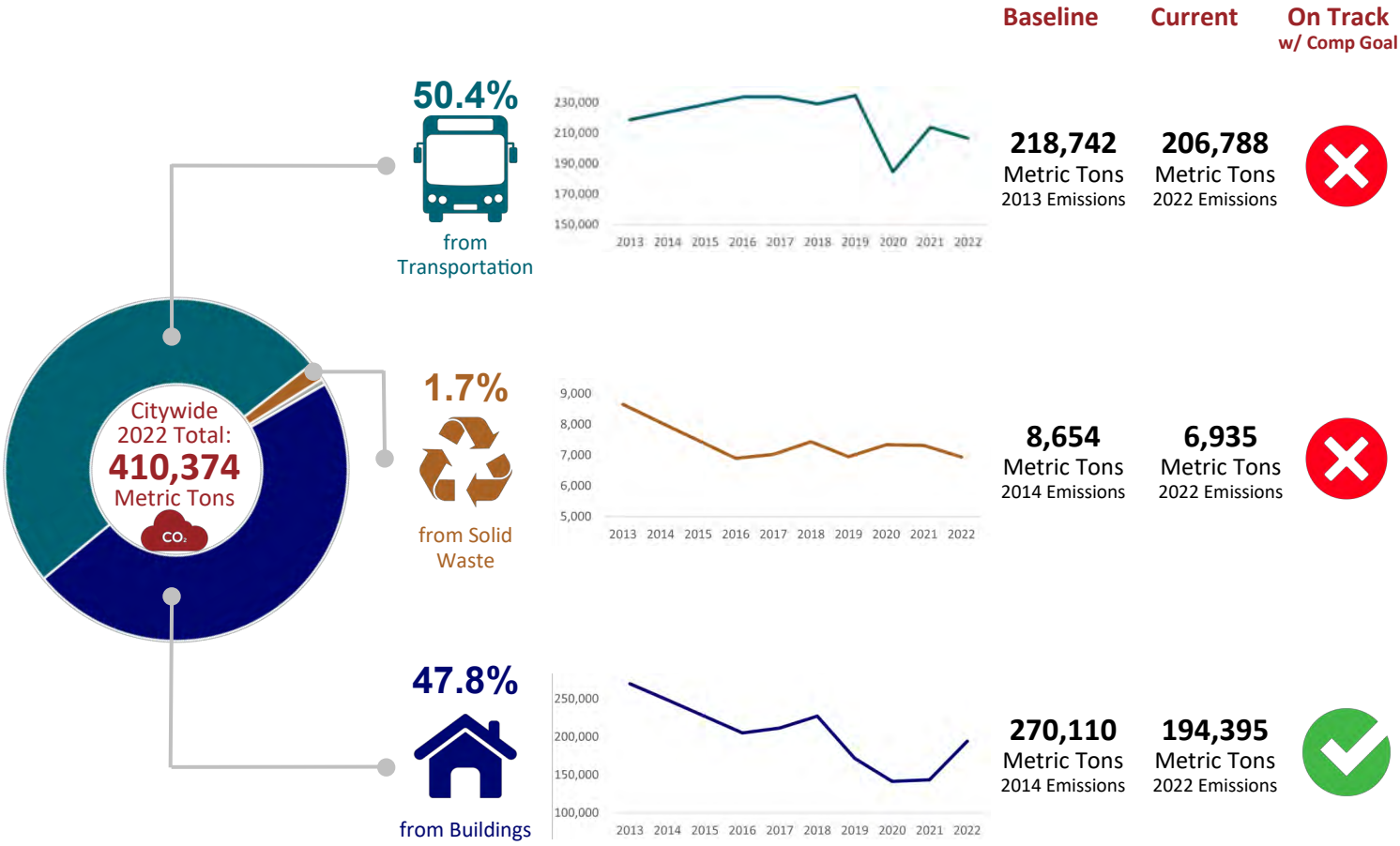
Supporting low-cost community solar projects| **64%**

Maplewood's GHG Emissions

Measuring and tracking GHG emissions is vital for any climate mitigation planning or implementation effort. Community-wide total emissions for Maplewood decreased from 508,112 MT CO_2e in 2013 to 410,374 in 2022.[14] This represents a decrease in GHG emissions of over 19% while the city's population increased 0.6% during the same timeframe. Transportation emissions reduced 8.3% from 218,742 MT CO_2e in 2013 to 206,788 in 2022, Solid Waste emissions decreased 20% from 8,654 MT CO_2e in 2013 to 6,935 in 2022, and Building emissions dropped 28% from 270,110 MT CO_2e in 2013 to 194,395 in 2022.

Although all sectors have seen reductions, only the Building sector has seen reductions on track with long-term GHG reduction goals as established in the City's 2040 Comprehensive Plan (80% reduction by 2050).

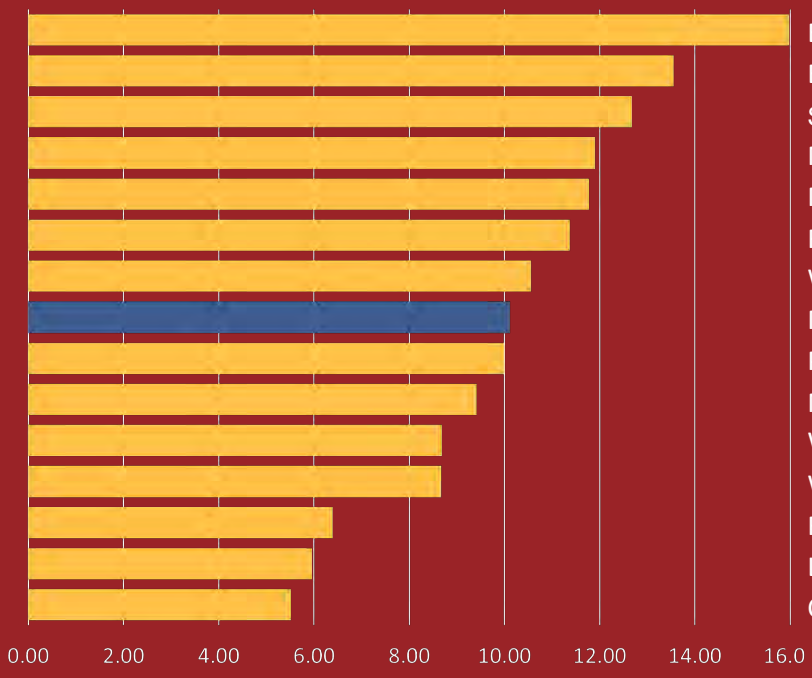
Maplewood Community-Wide GHG Emission Trends[14]



How Large Are Community wide GHG Emissions?

The City's total emissions for 2022 are equivalent to over **8.05 Billion** cubic feet of human-made greenhouse gas atmosphere. This volume of atmosphere is equal to a cube **2,004** feet on each face, seen here from Hayden Heights Library over 2 miles away

Emissions Per Capita



How Do We Stack Up?

In 2022, Maplewood emitted 10 MT CO_2e per person, significantly below the U.S. average of 20.7 MT CO_2e.[14]

The chart on the left compares Maplewood emissions to other Minnesota communities.

The Plan

A climate mitigation plan should be treated as a living document—one that evolves alongside advances in science, emerging technologies, shifting federal and state regulations, and changing resource availability. As new data refines our understanding of climate risks and solutions, the plan must be flexible enough to incorporate updated emissions targets, innovative tools, and best practices. Policy changes at the federal and state levels may introduce new compliance requirements or funding opportunities, requiring timely adjustments. Additionally, fluctuations in staffing, funding, and community capacity can influence implementation strategies. By building in regular review cycles and clear update processes, the plan can remain relevant, effective, and aligned with current conditions and opportunities.

The Maplewood Climate Mitigation Plan:

Addresses	Through	Supported by a menu of	Over a
3 Sectors	**14 Strategies**	**55 Actions & Partnership Opportunities**	**10 Year**
of GHG emission reductions	To achieve goals	that can be taken	Implementation timeframe

The plan guides both City operations and community-wide climate action. It includes an implementation section and three sectors focused on reducing GHG emissions. Each sector is presented with goals and strategies, supported by actions and partnership opportunities for implementation.

Actions represent strategies and initiatives the City can implement directly and over which it has primary control. These are measures the City can advance through its own policies, programs, investments, and operations.

Partnership Opportunities identify areas where the City can support, expand, or promote existing projects and initiatives led by other agencies or organizations. While the City may not have direct control over these efforts, it can play a meaningful role through collaboration, advocacy, and coordination.

Click arrows below to view sections.

Click here for section

Transportation and Land Use

Enhancing the resilience of Maplewood's mobility while reducing GHG emissions and environmental impacts of transportation and land use.

Click here for section

Buildings and Energy

Reducing building related GHG emissions and enhancing resilience by improving efficiency, using renewable energy, and reducing on-site combustion.

Click here for section

Waste Management

Minimizing GHG emissions by increasing recycling, material reuse, organics collection, and waste reduction.

GHG Reduction Goal

This plan aligns with science-based GHG reduction targets established by the State of Minnesota, Metropolitan Council, and Ramsey County.[14,15,16] The CMP sets both interim and long-term goals:

City of Maplewood's GHG interim reduction goal:

"To reduce citywide GHG emissions by 46% below 2013 levels by 2036."

City of Maplewood's long-term GHG goal:

"To achieve net zero emissions by 2050."*,**

The CMP goals should be reviewed as part of the City's upcoming 2050 Comprehensive Plan process and development. The plan's Sector goals aim to evenly distribute GHG reductions and meet the community's overall emissions targets. They are designed to be achievable yet ambitious, surpassing business-as-usual outcomes.

* Goal aligns with State of Minnesota, Metropolitan Council, and Ramsey County GHG reduction goals.[14,15,16]

** A community, business, institution, or building that produces the same amount of energy it consumes through renewable GHG emission-free sources ("clean energy"), resulting in zero net emissions over a year.

Survey of Peer Community Carbon Reduction Goals

Burnsville	**Reduce community-wide GHG emissions 40% below 2005 levels by 2030 and 80% below 2005 levels by 2050.**
Eagan	**To reduce community-wide GHG emissions 55% below 2014 levels by 2035, and net zero emissions by 2050.**
Edina	**To reduce community-wide GHG emissions 45% below 2019 levels by 2030, and net zero emissions by 2050.**
Falcon Heights	**To reduce community-wide GHG emissions 47% below 2019 levels by 2035, and net zero emissions by 2050.**
Minneapolis	**100% renewable energy for city operations by 2022 and citywide electricity by 2030.**
New Brighton	**To reduce community-wide GHG emissions 42% below 2013 levels by 2030, and achieve carbon neutrality by 2050 .**
St Louis Park	**100% renewable electricity citywide by 2030, carbon neutrality by 2040.**
St Paul	**Carbon neutral municipal operations by 2030, carbon neutral citywide by 2050.**

Click here to return to TOC

CURRENTLY IN MAPLEWOOD (2022)

50.4%
Community-wide GHG emissions in 2022 from transportation

379.9 million
Vehicle Miles Traveled in 2022

75.5%
Commuters drove alone in 2022

1.9%
Commuters use public transit

346
Battery Electric Vehicles (BEV) registered

Transportation and Land Use

Moving people, goods, and services requires large amounts of energy, and the vehicles and equipment that enable this mobility are highly resource-intensive. Beyond cars and trucks, construction equipment, recreational vehicles, and lawn and landscape tools also rely heavily on fossil fuels for daily operation.

Globally, transportation and equipment systems account for roughly one-quarter of total energy use and carbon dioxide emissions.[1] In Maplewood, the transportation and land use sector is responsible for 50.4% of citywide GHG emissions and is expected to grow as the electricity supply becomes increasingly renewable.[2]

There are many pathways to make transportation more sustainable while improving equity and quality of life. Expanding shared and multi-modal transportation and reducing reliance on single-occupancy vehicles can significantly lower emissions. Walking, biking, e-bikes, and scooters also support physical activity and reduce air pollution. At the same time, transitioning to electric vehicles and renewable fuels can further decarbonize transportation and improve local air quality, including in lower-income neighborhoods with historically lower electric vehicle (EV) adoption.[3, 4]

The Link Between Land Use and Transportation Emissions

Transportation emission strategies often focus on vehicle technologies and lower-carbon fuels, but research shows that land-use decisions are equally important. Smart growth and compact development reduce emissions by shortening trips, supporting walking and transit, and lowering overall vehicle travel. More compact communities are also associated with more energy-efficient housing. Studies indicate that thoughtful urban development can deliver meaningful emission reductions; one analysis of the 125 largest U.S. urbanized areas found that a 10% increase in population density was associated with a 4.8% reduction in travel-related CO_2 emissions and a 3.5% reduction in residential energy emissions.[5]

Sector Goals:

	lower GHG emissions	fewer vehicle miles traveled	increased public transit use	increased electric vehicles	increase in population density
To align with established goals by 2036:*	46%	7.5%	5.1%	20%	7.2%

Equity Considerations:

Equity in transportation climate action means sharing the costs, benefits, and responsibilities of reducing emissions fairly—especially for communities that have been disproportionately impacted. Key equity considerations include:

Access: Expand affordable, reliable, and low-carbon transportation options by improving public transit, bike and pedestrian infrastructure, and closing service gaps in underserved areas.

Affordability: Reduce financial barriers through incentives, subsidies, and financing that support low-income households in adopting cleaner transportation.

Jobs: Support transportation workers through retraining, quality job opportunities, and fair wages as the sector transitions to a green economy.

How We Get There:

Found on the following pages:

Strategies guide how we achieve our climate action goals.

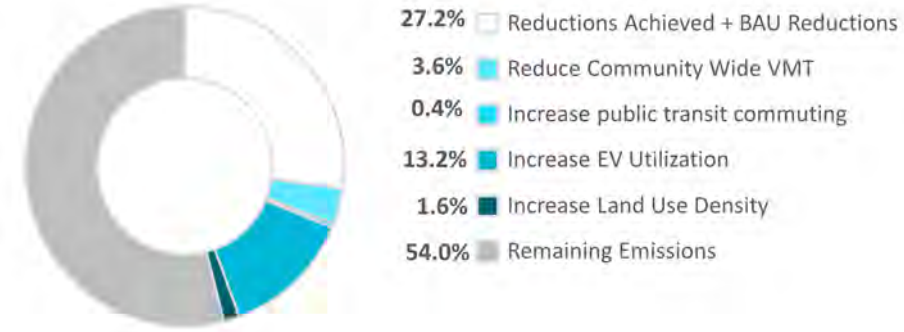
Strategy Metrics indicate how we can measure our progress.

Actions outline steps the City can take to support strategies.

Partnership Opportunities are areas the city can support or promote partner-led initiatives and programs.

Sector Impact:

Through alignment with established goals, this section outlines strategies to reduce citywide GHG emissions by 105,530 MT CO_2e annually by 2036—a 46% decrease from 2013 levels. This is equivalent to removing over 15,400 vehicles from the road or eliminating 3 billion cubic feet of greenhouse gases annually by 2036.[2,7] Emission changes are detailed below:



*Established goals include State of Minnesota Climate Framework, Metropolitan Council Priority and Comprehensive Climate Action Plans Ramsey County Climate Equity Plan, and City of Maplewood 2040 Comprehensive Plan.[8]

BAU = 'Business-as-Usual' Reductions are anticipated reductions resulting from existing requirements or commitments, which are outside the scope of this plan.

Strategy TL 1

Promote community wide efforts to reduce Vehicle Miles Traveled (VMT) in alignment with county, state, and metropolitan council plan goals.

Citywide vehicle miles traveled (VMT) in Maplewood was 379.9 million miles in 2022. Although the city saw a 6.3% increase in VMT between 2013 and 2018, VMT decreased after 2018 leaving total miles driven in 2022 2.8% less than in 2013, a decrease of 3.7% per household VMT.[2] Every 1% reduction in VMT cuts over 3.7 million miles and lowers GHG emissions by more than 2,000 MT CO_2e annually.[7] Expanding safe and accessible bike and walking routes to schools, retail, and recreation centers can help reduce vehicle use for everyday trips.

ACTIONS

- TL 1-1: Collaborate with public transit partners to promote safety at transit stop locations.
- TL 1-2: As a part of the Comprehensive Plan update, conduct a Living Streets, Sidewalk, and Bike Path Completeness and Quality Assessment. Utilize the Comprehensive Plan findings and the Living Streets Policy when reviewing state, county, and local street improvement projects.
- TL 1-3: Collaborate with partners on alternative transportation projects.
- TL 1-4: Continue to designate funding for sidewalk and trail network improvements.
- TL 1-5: Conduct development planning around public transit transfer areas to increase Transit Oriented Development.

Strategy Metrics: Reported “drive alone” commuter transportation data (US Census); Annual VMT data reported (MNDOT)

Strategy TL 2

Collaborate with public transit partners to support and promote public transit initiatives in alignment with county, state, and metropolitan council plan goals.

The average commute for Maplewood’s over 17,000 workers is 23.5 minutes, or approximately 15 miles.[9,10] Meanwhile, AAA estimates that the cost per mile for operating a vehicle is $0.77.[11] Consequently, every 1% increase in commuter utilization of public transit in Maplewood may decrease vehicle miles traveled by 964,000 miles and save commuters $500,000 annually.

ACTIONS

- TL 2-1: Collaborate with regional partners to ensure transportation alternatives for our community. Including bikes being able to be brought on buses, and that bus stops and route efficiency meet the needs of our community.

Strategy Metrics: Reported public transit commuter data (US Census, MVTA / Metro Transit, AllTransit); Annual VMT data reported (MNDOT)

Strategy TL 3

Encourage increased density requirements as part of Metropolitan Council's comprehensive planning efforts in alignment with county, state, and metropolitan council plan goals.

Maplewood's developed land totals 5,797 acres, representing 50.2% of the City's total area.[12] This land supports a population of 41,159—an average of 7.1 residents per developed acre.[13] With the community largely built out, most new development in Maplewood occurs through redevelopment rather than expansion into previously undeveloped land. The City's population is projected to increase by up to 14% by 2036.[14]

Research indicates that for every 1% increase in population-weighted urban density, household travel-related CO_2 emissions decrease by approximately 0.12% to 0.48%.[15],[5] In a predominantly developed community like Maplewood, redevelopment presents an opportunity to accommodate future growth through increased density within existing neighborhoods and commercial areas, rather than through outward expansion. Establishing zoning ordinances and incentives that support context-sensitive infill and redevelopment—while prioritizing affordable housing and preventing displacement—can help reduce per-household emissions and advance equitable climate outcomes citywide.

ACTIONS

TL 3-1: Update the zoning ordinance to encourage Transit Oriented Development (TOD), accessory dwelling units, mixed-use development, incentivize infill development, and along and near primary Metro Transit routes and transit stops. These amendments should include increasing building heights, allowing projects to build out to approved densities, and should consider opportunities for mixed land use.

TL 3-2: Continue to advocate for growth through appropriate increased density: a) Prioritize elements of the MPCA GreenStep Cities best practices that have the greatest potential for reducing carbon emissions. b) Give priority to state and local goals for carbon emissions reduction and climate change preparation in growth management decisions. c) Maximize benefits and consider impacts to communities of color and low-income populations when making growth management decisions. d) Protect natural resources and increase access to nature and open space within the community and development nodes.

Strategy Metrics: Reported total population (US Census); Total developed, non open space, land (City data; US Census data; NHGIS)

Strategy TL 4

Promote zero and reduced emission vehicle use in the City of Maplewood in alignment with county, state, and metropolitan council plan goals.

Transitioning Maplewood's vehicles from fossil fuels to low- and zero-emission options is essential for long-term emissions reductions. Electric vehicles can cut vehicle emissions by 50–70%, and the emissions from battery manufacturing are typically offset within about two years.[16]

Concerns about EV battery sustainability are increasingly mitigated by advances in recycling. EV batteries contain valuable materials—such as lithium, cobalt, and nickel—that can be recovered at rates exceeding 95% and reused multiple times.[17] A Stanford University analysis found that batteries made with recycled materials can generate up to 80% fewer emissions than those produced from virgin materials, reducing the emissions breakeven point with gasoline vehicles to under 15,000 miles.[18] Recent research also shows that recycled batteries can match or outperform those made from new materials.[19]

Maplewood has an estimated 30,300 vehicles, but as of December 2024, only 429 were battery electric vehicles (BEVs and PHEVs).[97,20] For every 1% of vehicles in Maplewood converted to EVs, up to 1,600 MT CO_2e of greenhouse gas emissions could be eliminated annually, even accounting for increased electricity use.[2,7]

ACTIONS

TL 4-1: Promote EV charging stations at areas of priority for City goals.

TL 4-2: Investigate and promote zero and reduced emission vehicle and transportation incentive

TL 4-3: In future trash and recycling hauler RFPs include scoring that rewards and promotes zero emission and lower-emission fleet use.

TL 4-4: Investigate and promote zero emission equipment incentive programs.

TL 4-5: Conduct a zero emission fleet transition study for city vehicles. Include yearly review of telematic

Strategy Metrics: Registered EV vehicles citywide (MNDOT; EV Hub)

Strategy **TL 5**

Improve the fuel efficiency of City fleet combustion engine fleet in alignment with county, state, and metropolitan council plan goals.

Municipalities can lead the shift to low-emission fleets by demonstrating their benefits and feasibility. In addition to zero emission vehicle transition, fuel-efficient driving, proper maintenance, and high-efficiency parts can reduce fuel use by at least 10%, while replacing non-EV-eligible vehicles with hybrids or plug-in hybrids can cut fuel consumption 20–60%. [21,22,23,24]

In 2022, the City of Maplewood's municipal vehicle fleet consumed a total of 44,245 gallons of gasoline and 104,141 gallons of diesel fuel. For every 1% of fuel savings through efficiency measures, municipal GHG emissions will be reduced by as much as 14 MT CO_2e annually.[2,7]

ACTIONS

TL 5-1: Install fleet telematics monitoring on all City of Maplewood fleet vehicles (or at a minimum one vehicle for each vehicle class and use case within the fleet). Use the telematics data to identify fuel efficiency improvement opportunities and targets.

TL 5-2: Provide City wide training on Eco Driving

Strategy Metrics: City reported vehicle fleet profile; City reported fleet fuels consumed

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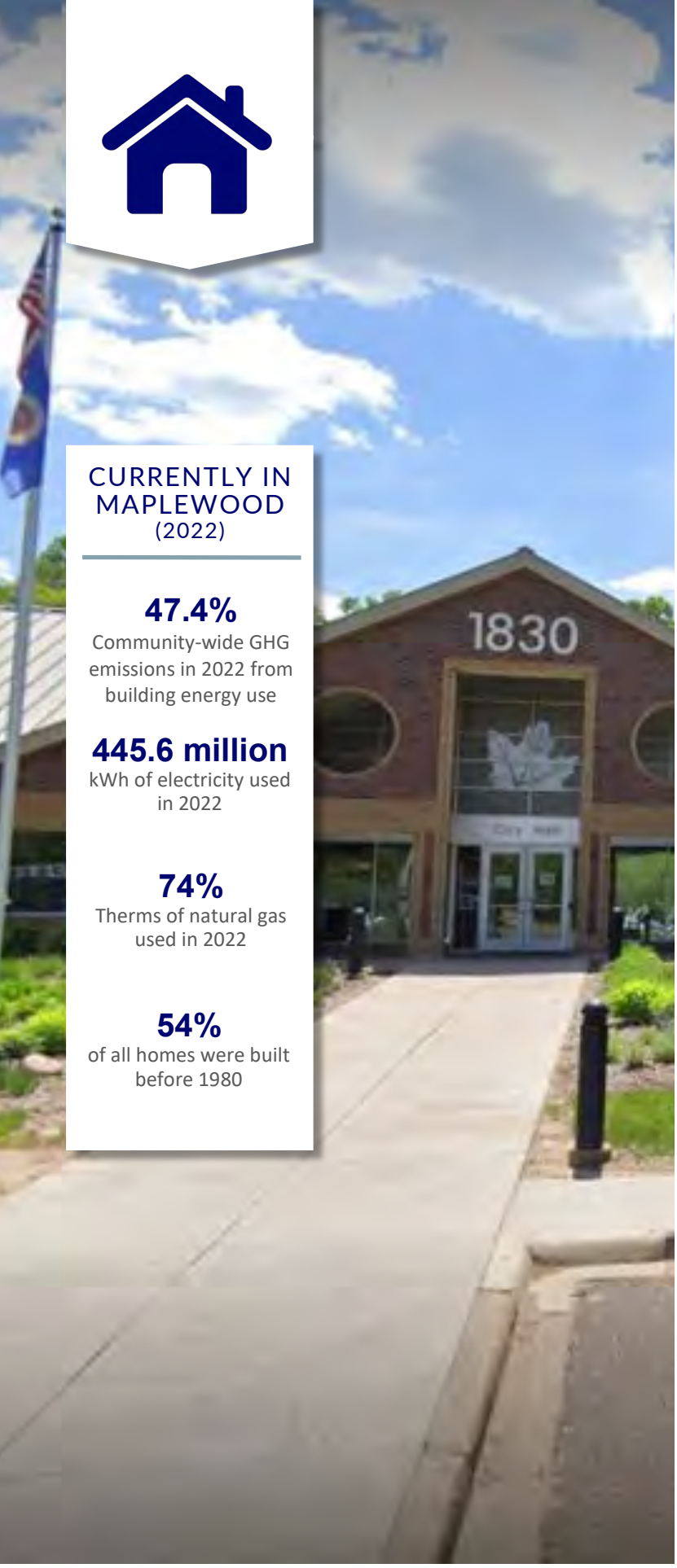


CURRENTLY IN MAPLEWOOD (2022)

47.4%
Community-wide GHG emissions in 2022 from building energy use

445.6 million
kWh of electricity used in 2022

74%
Therms of natural gas used in 2022

54%
of all homes were built before 1980

Buildings and Energy

Energy use in buildings is a major contributor to greenhouse gas (GHG) emissions from both homes and non-residential facilities. These emissions come from direct on-site fuel use, such as natural gas for heating or cooking, as well as indirect emissions from fossil fuels used to generate electricity elsewhere. Building design plays a key role in long-term efficiency, comfort, and performance. Improving energy efficiency lowers GHG emissions while reducing energy costs for residents and businesses. Strengthening Maplewood's built environment also enhances climate resilience and provides lasting environmental, social, and economic benefits for the community.

Residential Energy

According to 2022 citywide data, the residential sector in the City of Maplewood consumes over 116 million kWh annually. This is equal to 7,593 kWh per household. The sector also consumes over 11.5 million therms of natural gas annually, equal to 752 therms per household. Residential energy GHG emissions total 92,385 metric tons annually, approximately 47.5% of Citywide building energy sector emissions.[1,2]

Non-Residential Energy

The City of Maplewood non-residential sector in 2022 consumed nearly 329 million kWh, equal to 19,341 kWh per job. These sectors also consume over 10.5 million therms of natural gas annually, or approximately 620 therms per job. Non-residential energy GHG emissions total 102,011 metric tons annually, approximately 52.5% of Citywide buildings energy sector emissions.[1,2]

Sector Goals:

	lower GHG emissions	renewable electricity	less electricity use	less on-site fuel combustion	fuel switching from on-site combustion
To align with established goals by 2036:*	47%	15%	5%	27%	15%

Equity Considerations:

The transition to clean energy is essential but requires upfront investment that can worsen existing inequities. Many residents face financial barriers to improving energy efficiency or accessing renewable energy, while rising fossil fuel costs may further strain household budgets. These challenges disproportionately affect economically vulnerable communities, who also face greater climate risks. Key equity considerations include:

Home energy efficiency: Limited resources prevent many households from making cost-saving efficiency upgrades.

Renewable energy access: High upfront costs limit participation in solar and other clean energy projects.

Electrification: The initial expense of switching from fossil fuel–based systems to electric heating and appliances remains a significant barrier.

How We Get There:

Found on the following pages:

Strategies guide how we achieve our climate action goals.

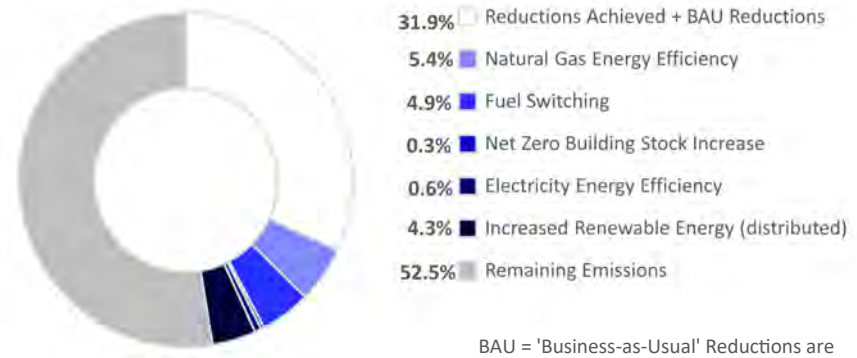
Strategy Metrics indicate how we can measure our progress.

Actions outline steps the City can take to support strategies.

Partnership Opportunities are areas the city can support or promote partner-led initiatives and programs.

Sector Impact:

Through alignment with established goals, this section outlines strategies to reduce citywide GHG emissions by 128,173 MT CO_2e annually by 2036—a 47% decrease from 2013 levels. This is equivalent to removing over 18,800 vehicles from the road or eliminating 3 billion cubic feet of greenhouse gases annually by 2036.[1,2] Emission changes are detailed below:



BAU = 'Business-as-Usual' Reductions are anticipated reductions resulting from existing requirements or commitments, which are outside the scope of this plan.

*Established goals include State of Minnesota Climate Framework, Metropolitan Council Priority and Comprehensive Climate Mitigation Plans Ramsey County Climate Equity Plan, and City of Maplewood 2040 Comprehensive Plan.[8]

Strategy BE 1

Improve building energy efficiency and the use of zero and low-emission fuel sources throughout the City in alignment with county, state, and metropolitan council plan goals.

Upgrading homes and commercial buildings with energy-efficient technologies can significantly reduce citywide energy use, particularly in older structures.[4] In Maplewood, 24% of owner-occupied and 29% of rental homes were built before 1980, presenting a key opportunity for upgrades.[5]

ACTIONS

BE 1-1: Research existing resources that provide information on energy grants and how the information is supplied to the public.

BE 1-2: Coordinate with Xcel Energy and other partners to help promote their energy efficiency and renewable energy programs.

BE 1-3: Promote or establish an Energy and Water Benchmarking and annual reporting program for commercial, institutional, industrial, and multi-family buildings.

BE 1-4: Promote education on strategies, resources, benefits, financing, incentives, and rebate opportunities including information on financial incentives for increased energy efficiencies.

BE 1-5: Implement communications to engage residents, developers, and business owners on opportunities for energy efficiency improvements, electrification, and renewable energy.

BE 1-6: Increase adoption of high-performance and net -zero building construction technology.

BE 1-7: Establish and promote a Net Zero Energy Building Guide providing building owners, renters, developers, designers, and contractors with detailed information on strategies to make new construction or significant renovation projects Net Zero Energy or Net Zero Energy ready. Include a project strategy checklist for building owners and teams to use and report sustainable strategies used.

BE 1-8: Following adoption of the 2027 state building code, review and update City's Green Building code. Updated Green Building Code should allow for flexibility in meeting energy, sustainability, and other

Strategy Metrics: Annual electricity use reported (Xcel); Annual natural gas use reported (Xcel)

Strategy BE 2

Increase residential and commercial and industrial building "fuel switching" from on-site fossil fuel combustion to electrification or renewable fuels in alignment with county, state, and metropolitan council plan goals.

Within Maplewood, 74.4% of residential heating is provided by natural gas, 23.3% by electricity, and the remaining 2.3% uses fuel oil, wood, solar, or "other."[6] As Maplewood's electric grid nears carbon neutrality, building heating fuel will become an increasingly important target for emission reductions.[7] Reduction, and ultimately the elimination of all fossil fuel heating (oil, propane, natural gas) in the buildings sector will be required in order to achieve community wide carbon reductions.[1] Research shows that switching from natural gas use improves indoor air quality and health outcomes.[8,9,10]

ACTIONS

BE 2-1: Educate residents about the benefits of replacing heating equipment with air-source heat-pumps, or other efficient electric heating options.

BE 2-2: Review and promote future partnerships that promote residential and small business zero and low emission heating system group purchasing opportunities related to energy efficiencies.

BE 2-3: Promote education on strategies, resources, benefits, financing, incentives, and rebate opportunities including information on financial incentives for replacing natural gas appliances (e.g., ranges, water heaters, etc.) with electric alternatives.

BE 2-4: Following the City's Green Building Code update, consider establishing a building permit rebate for green projects in new construction or renovations, including: on-site renewable energy system projects that offset a defined percentage of the project's average annual energy demand, fuel-switching projects (renovations), or electrical heat pump projects (new construction).

BE 2-5: Staff to review upcoming legislative items that help meet the City's Climate Mitigation Plan goals (including transportation, building and energy, and waste management) and provide recommendations for including these items for the City's lobbyist.

Strategy Metrics: Reported natural gas accounts (Xcel); Share of homes by heating type (US Census)

Strategy BE 3

Increase customer owned and purchased renewable electricity in alignment with county, state, and metropolitan council plan goals.

GHG emissions from grid-supplied electricity are expected to continue declining over time.[1,2] Even so, increased consumer participation in renewable energy remains essential to achieving GHG reduction goals. Expanding on-site renewable energy offers added benefits, including lower energy costs and improved resilience.[11,12] As of 2023, Maplewood had 118 customer-owned solar installations totaling 1.6 MW of capacity.[13] For residents and businesses unable to install on-site solar, utility renewable energy programs provide a pathway to net-zero electricity use while supporting continued decarbonization of the state's electric grid.[14,15]

ACTIONS

- BE 3-1: Review and promote partnerships that promote residential and small business solar group purchasing opportunities related to energy
- BE 3-2: Establish, or source, a Solar Ready Guide. The guide will provide building owners, renters, developers, designers, and contractors strategies that make new construction and renovations solar ready.
- BE 3-3: Engage solar installation companies in the process of drafting solar-ready requirements.

Strategy Metrics:

City and Utility reported customer owned installations;
Utility reported customer purchased renewable energy

Strategy BE 4

Improve City of Maplewood owned building energy efficiency.
(electricity and natural gas, including water and wastewater infrastructure).

In 2022, the City of Maplewood municipal buildings and operations consumed over 2.67 million kWh of electricity and nearly 200,000 therms of natural gas. Building energy consumption represents nearly 51% of GHG emissions associated with municipal operations.[1] Every 1% increase in energy efficiency of municipal operations reduces electric consumption by 26,700 kWh, natural gas consumption by 2,000 therms of annually. These reductions could save as much as $4,100 and eliminate over 18 MT CO_2e of GHG emissions annually.[1,16]

ACTIONS

- BE 4-1: Conduct a City Facilities Energy Audit on all City buildings. Include an "Electrification Assessment and Action Plan" in each audit to outline actions and priorities for electrification of all City facilities that will move towards zero on-site fossil fuel combustion.
- BE 4-2: Continue to require new construction City owned facilities and projects receiving city financial incentives to be built to meet or exceed the City's Green Building and energy code.
- BE 4-3: Commit to annual review of City facility plug load reductions.

Strategy Metrics:

Annual municipal operations electricity use reported (Xcel);
Annual municipal operations natural gas use reported (Xcel)

Strategy BE 5

Increase City of Maplewood owned building thermal “fuel switching" from on-site fossil fuel combustion to electrification or renewable fuels in alignment with county, state, and metropolitan council plan goals.

On-site natural gas use produces nearly 30% of Maplewood’s municipal GHG emissions each year.[1] As the electric grid becomes cleaner, reducing fossil fuel–based heating will be essential to further emissions reductions.[7] Transitioning City facilities to cleaner heating systems through a fuel-switching program is therefore a critical strategy.

ACTIONS

BE 5-1: Establish a policy to guide electrification of City owned buildings.

Strategy Metrics: City reported number of buildings with on-site natural gas combustion; Annual municipal operations natural gas use reported (Xcel)

Strategy BE 6

Increase renewable energy of City of Maplewood owned building electric use.

(on-site and/or purchased)

By leading in renewable energy adoption, the city can model sustainable and resilient energy systems. Supplying all municipal electricity through on-site generation and green energy purchases could reduce emissions by up to 740 MT CO_2e annually.[1] Meanwhile, on-site renewables can also support microgrids, clean energy storage, and improved energy resilience.[17,18]

ACTIONS

BE 6-1: Establish a policy which requires all new construction and significant renovation projects for City facilities to be evaluated for solar power and, where appropriate, be constructed to meet "Solar Ready" requirements and to include a solar feasibility assessment and project option for inclusion of on-site solar, include "Return on Investment" assessment.

BE 6-2: Install renewable energy sources on all city buildings and facilities where return is favorable. Explore including City Facility solar purchases within community-wide commercial solar group purchase campaigns.

Strategy Metrics: City reported on-site energy production; City reported electricity consumption

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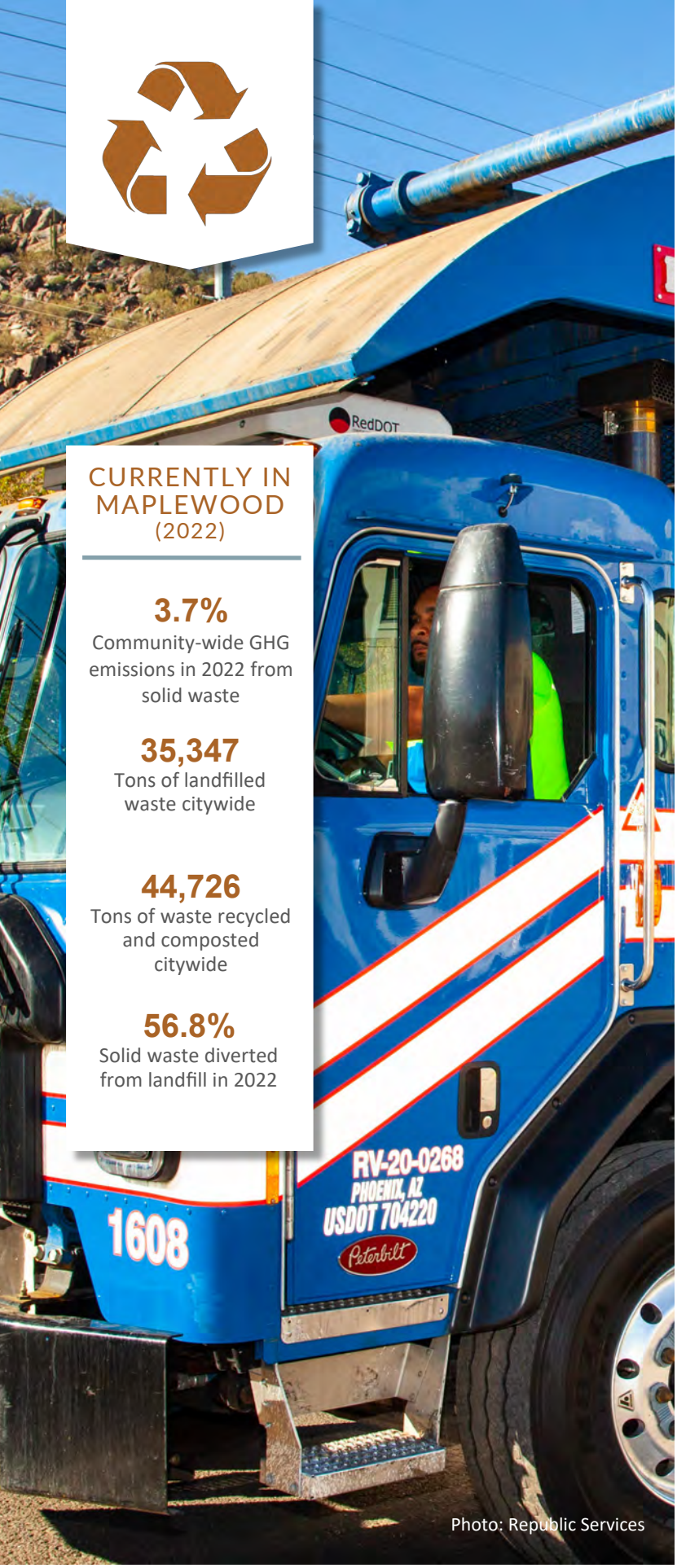


Photo: Republic Services

CURRENTLY IN MAPLEWOOD (2022)

3.7%
Community-wide GHG emissions in 2022 from solid waste

35,347
Tons of landfilled waste citywide

44,726
Tons of waste recycled and composted citywide

56.8%
Solid waste diverted from landfill in 2022

Waste Management

Waste management encompasses municipal solid waste and recycling systems, including the amount of material generated, service demand, and the capacity and infrastructure needed for collection and disposal. Municipal solid waste contributes to climate change primarily through methane released from landfills and emissions from waste transportation. Strategies such as waste reduction, recycling, and organics collection help lessen these impacts. Reducing waste lowers landfill methane, while recycling decreases the need for raw material extraction, conserves energy, and reduces emissions. Composting organic materials further cuts methane, stores carbon in soils, and provides a sustainable alternative to synthetic fertilizers.

Solid Waste in Maplewood[1,2]

Total solid waste handled in 2013 was 47,262 tons. By 2022 the total was 31,936 tons for a decrease of 32%. The share of solid waste being diverted for recycling has also decreased from 25,670 tons in 2013 to 10,422 tons in 2022, an decrease of 21.7% in the share of total solid waste diverted for recycling. Organics diversion, however, has increased slightly from 1.5% of total solid waste collected in 2013 to 1.8% in 2022. These numbers illustrate a potential significant opportunity to increase landfill diversion, particularly with organic materials which produce the highest landfill GHG emissions.

Sector Goals:

	lower GHG emissions	less solid waste per person	more organics diversion	more recycling diversion
To align with established goals by 2036:*	13%	15%	6x	1.5x

Equity Considerations:

Embedding equity considerations into solid waste systems helps ensure all residents can participate and benefit. Without careful design, collection fees, fines, or material restrictions may place a heavier burden on lower-income households or make participation more difficult, unless paired with fair pricing structures or financial support. Participation can also be limited when outreach is not available in multiple languages or does not reflect the cultural needs of the community. Addressing these language, cost, and access barriers can expand involvement in waste reduction and recycling programs.[2] Additionally, efforts to curb food waste can bolster food-rescue initiatives that provide surplus food to households experiencing economic hardship.[3]

How We Get There:

Found on the following pages:

Strategies guide how we achieve our climate action goals.

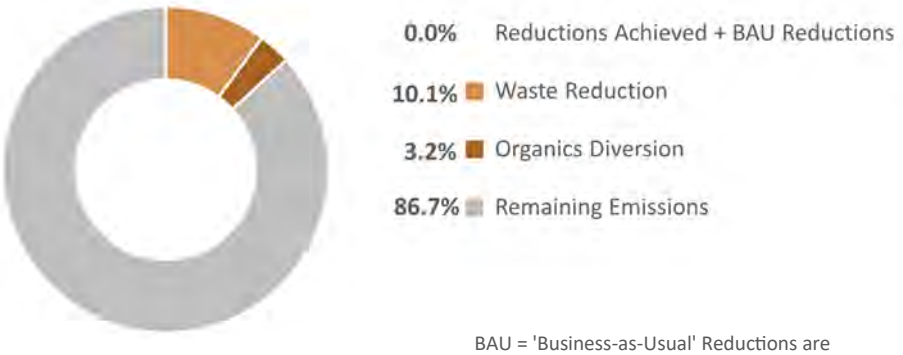
Strategy Metrics indicate how we can measure our progress.

Actions outline steps the City can take to support strategies.

Partnership Opportunities are areas the city can support or promote partner-led initiatives and programs.

Sector Impact:

Through alignment with established goals, this section outlines strategies to reduce citywide GHG emissions by 916 MT CO_2e annually by 2036—a 13% decrease from 2013 levels. This is equivalent to removing 135 vehicles from the road or eliminating 18 million cubic feet of greenhouse gases annually by 2036.[1,2] Emission changes are detailed below:



*Established goals include State of Minnesota Climate Framework, Metropolitan Council Priority and Comprehensive Climate Mitigation Plans Ramsey County Climate Equity Plan, and City of Maplewood 2040 Comprehensive Plan.[8]

BAU = 'Business-as-Usual' Reductions are anticipated reductions resulting from existing requirements or commitments, which are outside the scope of this plan.

Strategy WM 1

Promote reduction of solid waste throughout the City in alignment with county, state, and metropolitan council plan goals.

The Minnesota Pollution Control Agency (MPCA) created a waste management hierarchy based on environmental impacts. This hierarchy prioritizes waste reduction, reuse, recycling, and organics recovery.[5] Reducing waste decreases the materials consumed and discarded, saving energy and lowering landfill greenhouse gas emissions. Homes and businesses that minimize waste can save hundreds of dollars annually.[6,7,8] Continuing to establish policies and programs to reduce the total volume of waste generated represents a significant environmental opportunity for Maplewood.

ACTIONS

- WM 1-1: Collaborate with others to expand consumer education on sustainable consumption and materials management, including prevention of wasted food in households and businesses, available services, incentives, and facilities as well as proper recycling / composting / source reduction methods.
- WM 1-2: Collaborate with partners to deliver expanded multifamily housing assistance program to increase recycling and composting
- WM 1-3: Work with Ramsey County and other partner organizations to encourage businesses and residents to purchase reused and reusable goods (i.e., the Choose to Reuse campaign)
- WM 1-4: Partner with local school district to promote and establish paths towards Zero Waste programs.
- WM 1-5: Support Ramsey County's programming that promotes "collaborative consumption" community projects like tool libraries, repair cafes through mini-grant programs, or a Fix It Fair at the Library or other appropriate venue.
- WM 1-6: Collaborate with Ramsey County and other partners to promote ReUse stores and community
- WM 1-7: Study and consider adopting a deconstruction/diversion policy or ordinance to require the reuse or recycling of salvageable construction and demolition materials.

Strategy Metrics:

Reported community-wide total MSW handled;
Total population (US Census)

Strategy WM 2

Increase organics, compostable, and yard waste diversion in alignment with county, state, and metropolitan council plan goals.

Most landfill gas arises from bacterial decomposition when organic waste breaks down by bacteria. Organic wastes include food, garden waste, street sweepings, textiles, wood, and paper products.[9] The State's 2013 Waste Characterization study shows that over 28% of Maplewood's landfill and waste-to-energy stream is organic material, including paper—presenting a major emissions reduction opportunity.[2,10]

ACTIONS

- WM 2-1: Promote food scrap bag program and use of Ramsey County's compost and yard waste drop off sites.
- WM 2-2: Collaborate with Ramsey County for an organics waste collection pilot project with a sample of City businesses to test the interest, methodology, and amount of commercial food waste that would need to be accommodated by a commercial organics collection program. Explore possible incentives for food retailers, restaurants, and institutions to participate in food waste reuse and recycling programs.
- WM 2-3: Review options for a city approved organics collection vender in the city's trash and recycling RFP for commercial properties.
- WM 2-4: Study and consider adopting a policy encouraging or an ordinance requiring use of compost soil amendments for all projects meeting an appropriate threshold.
- WM 2-5: Continue to make City buildings and properties a model for organics composting by continuing existing organics diversion efforts and identifying and implementing opportunities to divert

Strategy Metrics:

Reported community-wide total organic collection;
Reported community-wide total solid waste landfilled

Strategy WM 3

Increase recycling diversion in alignment with county, state, and metropolitan council plan goals.

The State's 2013 Waste Characterization study identifies significant potential to increase recycling, estimating that up to 48.5% of landfill and waste-to-energy waste could be recycled.[2,10] The largest opportunities lie in paper and plastics, with additional potential in metals and glass.

ACTIONS

WM 3-1: Look at new language during the waste and recycling hauler RFP process and future contracts to advance waste diversion best management practices and expand the types of materials accepted by the City's recycling program.

WM 3-2: Study and consider adopting minimum sustainability standards to reduce the impact of concrete use, asphalt, roadbed aggregate, or other construction materials.

WM 3-3: Promote the WasteWise program to expand utilization of business assistance and advising.

WM 3-4: Study and consider adopting a waste ordinance requiring commercial and multi-family property owners to provide compost collection services.

WM 3-5: Study and consider adopting a waste ordinance requiring commercial and multi-family property owners to provide compost collection

WM 3-6: Develop a recognition program to promote leading businesses succeeding in waste diversion and reduction.

Strategy Metrics:

Reported community-wide total recycling collection;
Reported community-wide total solid waste landfilled

Photo: Tennis Sanitation

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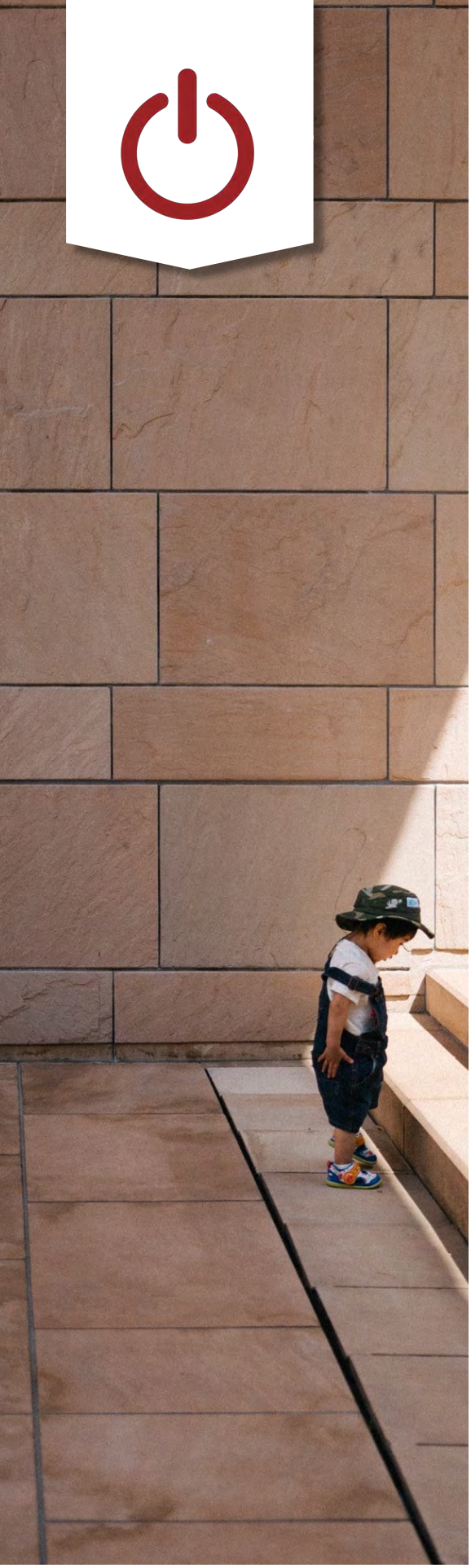


Implementation and Impacts

Climate Action Is an Ongoing Process

Implementation of this Climate Mitigation Plan (CMP) will be integrated into Maplewood's Capital Improvement Plan (CIP) process. The City updates its five-year CIP annually, allowing it to remain responsive to evolving priorities, regulatory requirements, funding opportunities, and available resources.

Each year, a cross-departmental team including Public Works and Community Development staff will meet to review progress on CMP-related projects from the previous year and to identify potential projects for inclusion in the next five-year CIP and projects that staff will undertake that are non-CIP projects. All proposed projects will include a clear description, anticipated benefits, potential drawbacks, and required resources, including staffing, financial commitments, and materials. The City's Environmental and Natural Resources Commission is a resource to provide input and provide preliminary suggestions for annual implementation consideration.

Prior to inclusion in the draft CIP, proposed CIP and non-CIP projects will be discussed with all departments responsible for implementation or potentially affected by the project. This coordination ensures organizational alignment and confirms departmental capacity before projects are presented to the Executive Leadership Team (ELT) for consideration and approval for inclusion in the draft CIP or implementation.

The draft CIP is then presented to the City Council as part of the annual budget process. Projects included in the Council-approved CIP must return to the City Council, along with all non-CIP projects for formal authorization prior to initiation. At that time, staff will provide detailed information on project scope, benefits, potential impacts, and required resources to support informed decision-making.

Implementation Is a Shared Responsibility

Climate change affects nearly every aspect of community life, and addressing it requires action at many levels. Some strategies will be led by City Council, City departments, Ramsey County, or community organizations and businesses. At the same time, individuals and households play an important role through everyday choices and actions. Reaching the goals outlined in this plan will require collective ownership, shared responsibility, and ongoing engagement from both City leadership and the broader Maplewood community.

"When enough people come together then change will come and we can achieve almost anything."

Greta Thunberg—Swedish Environmental Activist

Strategy I 1

Organize for Climate Mitigation Plan implementation.

Successful climate action depends on integrating mitigation strategies into everyday municipal operations. A cross-departmental implementation team, clear staff leadership for each action, and regular progress reviews will ensure accountability and sustained momentum. Effective cities align climate goals with routine decision-making, prioritize near-term actions that complement planned projects while advancing long-term objectives, actively pursue diverse funding opportunities, and apply the E-Framework—**Enabling**, **Encouraging**, **Educating the public**, and **Ensuring** municipal climate leadership.

ACTIONS

I 1-1: Following adoption of the Climate Mitigation Plan, staff will create an implementation plan for the first year. This will include identifying actions to prioritize in the first year, what resources are needed, grant opportunities, and funding. At the end of each year staff will review the progress made and develop a plan for the following year.

Implementation E-Framework:

ENABLE
Remove barriers and make action possible

ENCOURAGE
Incentivize and motivate voluntary action

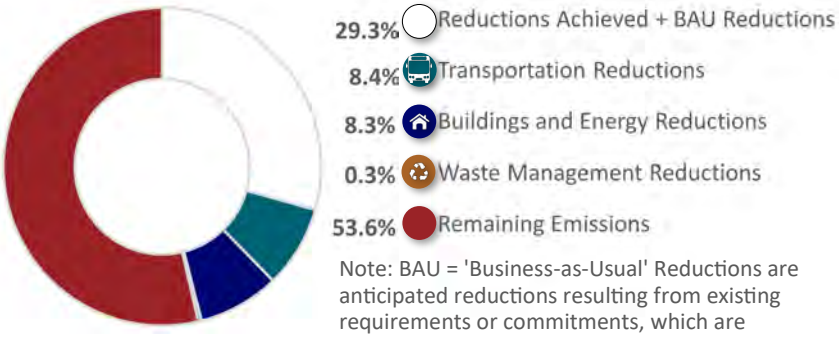
EDUCATE
Build understanding, awareness, and climate literacy

ENSURE
Formalize commitment, accountability, and possible community requirements

Plan Impacts

GHG Emissions Reductions

This plan includes strategies and actions designed to reduce emissions over the long term. Their potential impact has been modeled using projections for reduced energy and fuel use in line with State of Minnesota, Metropolitan Council, and Ramsey County GHG emission reduction goals. The modeling also accounts for expected adoption rates of renewable energy and low- or zero-emission transportation options. From this modeling, we know that with the successful implementation of the strategies outlined in this climate mitigation plan, citywide annual GHG emissions are projected to drop to 234,746 MT CO_2e by 2036, a 46.4% decrease below 2013 levels. The potential cumulative GHG emissions reductions over the 8 year implementation period are estimated at over 1.4 million MT CO_2e - equal to the elimination of over 28.6 billion cubic feet of greenhouse gases through 2036.



Note: BAU = 'Business-as-Usual' Reductions are anticipated reductions resulting from existing requirements or commitments, which are outside the scope of this plan.

Potential Economic Savings

Below is an estimate of the cumulative community-wide economic savings potential of implementing the plan through 2036.

Transportation Economic Potential*:

Sector Savings:	$159,000,000
Sector Cost Increases:	-$20,000,000
Potential Sector Net Cost Savings:	
	$139,000,000

Buildings and Energy Economic Potential*:

Sector Savings:	$27,000,000
Sector Cost Increases:	-$18,000,000
Potential Sector Net Cost Savings:	
+	**$9,000,000**

Waste Reduction Economic Potential*:

Residential Savings:	$24,000,000
Commercial Savings:	$156,000
Potential Sector Net Cost Savings:	
+	**$24,156,000**

Social Cost of Avoided Carbon:

+	**$7,000,000**
Estimated Localized Social Cost of Carbon per Metric Ton CO2e Avoided:	$88.57

Cumulative Community Savings Potential:

= **$179,156,000**

* Estimated community-wide costs and savings are calculated based on achieving goal statements and are not calculated on an individual action basis. Values do not include the economic potential of job creation and new business potential represented in the plan actions. See the appendix for a detailed illustration of how cumulative costs and savings are arrived.

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Transportation and Land Use

What You Can Do

Building a sustainable and resilient future is a shared responsibility. While the City has taken the lead by launching this planning effort, lasting progress will depend on continued involvement from residents, businesses, and community partners. By working together and taking small, practical steps, we can maintain momentum and turn goals into meaningful action. Here are a few simple things you can start doing today.

Reduce car use

- Walk or bike when traveling short distances.
- Take public transit to work or to run errands. Plan your trips at metrotransit.org.
- If possible, telecommute or carpool to avoid transportation emissions.
- Consider becoming a one-car household - and save thousands of dollars annually. Explore how to make the change at the theartofsimple.net.

Reduce your ride's impact

- Keep your personal vehicle well-tuned and tires inflated properly, and follow Eco-Driving tips to save 20% or more in gasoline use.
- Don't idle your car – even in the winter. The best way to warm up your car in the winter time is by driving it. No more than 30 seconds of warm-up is needed.
- Drive an electric, plug-in hybrid or low-emission vehicle. Explore incentives at the US DOE, State of Minnesota, and Xcel Energy.

Reduce lawn equipment impact

- Ditch your grass lawn and plant native pollinators that support our wildlife and don't require mowing.
- Explore native planting grant opportunities at Ramsey-Washington Metro Watershed District and the State of Minnesota Lawns to Legumes program.
- Refuel your car and mow your lawn after 7pm, which helps prevent ground-level ozone.
- Replace your lawn and snow equipment with electric, and explore rebates at Xcel Energy.

Reduce your business's impact

- Use video conferencing rather than traveling for meetings and promote telecommuting where possible. See City of San Francisco Telework Toolkit.
- Work to be designated as a League of American Bicyclists Bike Friendly Business and encourage your peers to participate.
- Explore how you can offer your employees alternative commute incentives from Victoria Transport Policy Institute.
- Make - and implement - a Fleet Transition Plan to convert your vehicle fleet to electric vehicles. See the National Association of Regional Councils for more.

Buildings and Energy

Use less energy

- Turn down your water heater to 120°.
- Replace an older home thermostat with an "ENERGY STAR Certified smart," programmable model and receive an Xcel Energy rebate.
- Schedule a Home Energy Squad energy audit through Xcel Energy.
- Install, or have a licensed contractor install, more insulation in your home.
- Install ENERGY STAR Certified energy-efficient windows and doors, working with a licensed contractor.
- Use ENERGY STAR certified energy-efficient appliances.

Go renewable

- Install solar PV or solar thermal panels at your home, working with a licensed contractor, see MnSIEA to begin your search.
- If possible, participate in a residential solar group purchasing program like this one from MREA.
- If you don't own your home (or if your home is not suitable for solar) buy renewable electricity through Xcel Energy.
- Support solar development by subscribing to community solar, learn more at Minnesota Clean Energy Resource Teams.

Reduce on-site fossil fuel use

- Replace your clothes dryer with an ENERGY STAR Certified heat pump model.
- Replace your gas range with an ENERGY STAR CERTIFIED induction cooktop.
- Replace your home's heating system with a low carbon option like these discussed on GreenMatch.

Waste Management

Increase Organics Diversion

- Create a backyard compost for vegetable food and yard waste.
- Participate in Ramsey County food scraps program to easily divert scraps from the landfill.
- Participate in Ramsey County's yard waste drop off program.
- Reduce food waste by using existing food first and planning meals.

Reduce what you throw away

- Follow Ramsey County recycling guidelines.
- Use LEDs and rechargeable batteries to reduce eWaste.
- Upgrade, donate, or recycle old electronics.
- Use reusable bags for all shopping.
- Swap single-use plastics for durable, reusable alternatives.
- Choose items with no-, minimal-, compostable-, or fully recyclable-packaging.
- Repair or donate reusable or repairable items instead of discarding.
- Dispose of hazardous waste like batteries and electronics at the Ramsey County Environmental Center.

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Appendix A:

References

The following are sources and additional references used in the Climate Mitigation Plan.

Introduction

1 City of Maplewood Climate Vulnerability Report, 2017; https://view.publitas.com/palebluedot/maplewood-climate-vulnerability-report/

2 City of Maplewood 2020 Appendix Climate Vulnerability Report; https://view.publitas.com/palebluedot/maplewood-2020-appendix-climate-vulnerability-report/

3 US EPA, Benefits of Global Action; https://www.epa.gov/sites/default/files/2015-06/documents/cirareport.pdf

4 Estimating the Health-Related Costs of 10 Climate-Sensitive US Events During 2012: https://www.nrdc.org/resources/bitter-pill-high-health-costs-climate-change

5 Stop Climate Change, Save Lives: https://www.nrdc.org/stop-climate-change-save-lives

6 World Health Organization Building Capacity on Climate Change for Human Health Toolkit: https://www.who.int/activities/building-capacity-on-climate-change-human-health/toolkit/cobenefits

7 United Nations Economic Commission for Europe: https://unece.org/DAM/Sustainable_Development_No._2__Final__Draft_OK_2.pdf

8 Bollen, J. et al. (2009), Co-benefits of Climate Change
Mitigation Policies: Literature Review and New Results, https://www.oecd-ilibrary.org/economics/co-benefits-of-climate-change-mitigation-policies_224388684356

9 US EPA, Report on the Social Cost of Greenhouse Gases; Estimates Incorporating Recent Scientific Advances, November 2023; https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf

10 West JJ, Smith SJ, Silva RA, Naik V, Zhang Y, Adelman Z, Fry MM, Anenberg S, Horowitz LW, Lamarque JF. Co-benefits of Global Greenhouse Gas Mitigation for Future Air Quality and Human Health. https://doi.org/10.1038%2FNCLIMATE2009

11 Mapping the co-benefits of climate change action to issues of public concern in the UK: a narrative review: https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30167-4/fulltext

12 City of Maplewood Community Input Survey Report, 2024; https://view.publitas.com/palebluedot/maplewood-community-input-summary-report

13 City of Maplewood Climate Adaptation Survey Report, 2020: https://view.publitas.com/palebluedot/maplewood-climate-adaptation-input-survey-report/

14 City of Maplewood 2022 GHG Inventory Report; https://view.publitas.com/palebluedot/maplewood-2022-ghg-inventory-report/

14 State of Minnesota Climate Action Framework; https://climate.state.mn.us/minnesotas-climate-action-framework

15 Metropolitan Council, Metropolitan Priority Climate Action Plan; https://www.epa.gov/system/files/documents/2024-03/metropolitan-council-twin-cities-msa-priority-climate-action-plan.pdf

16 Ramsey County Climate Equity Action Plan; https://www.ramseycountymn.gov/your-government/projects-initiatives/climate-action/climate-equity-action-plan

Transportation

1 US Energy Information Administration, International Energy Outlook 2016 https://www.eia.gov/outlooks/ieo/pdf/transportation.pdf

2 City of Maplewood 2022 GHG Inventory Report; https://view.publitas.com/palebluedot/maplewood-2022-ghg-inventory-report/

3 UCLA Institute of The Environment and Sustainability, "Electric vehicles improve air quality for everyone but have less impact in more polluted areas" https://www.ioes.ucla.edu/article/electric-vehicles-improve-air-quality-for-everyone-but-have-less-impact-in-more-polluted-areas/

4 Northwestern University, "Electric vehicle adoption improves air quality and climate outlook" https://news.northwestern.edu/stories/2019/04/electric-vehicle-adoption-improves-air-quality-and-climate-outlook/

5 The Influence of Urban Form on GHG Emissions in the U.S. Household Sector (Lee, S., and Lee, B. 2014) https://www.researchgate.net/publication/270952371_The_influence_of_urban_form_on_GHG_emissions_in_the_US_household_sector

6 City of Maplewood Community Input Survey Report, 2024; https://view.publitas.com/palebluedot/maplewood-community-input-summary-report

7 City of Maplewood Climate Action Baseline Assessment, 2024: https://view.publitas.com/palebluedot/city-of-maplewood-climate-action-baseline-assessment/

8 Established goals include:
State of Minnesota Climate Framework; https://climate.state.mn.us/minnesotas-climate-action-framework

Metropolitan Council Priority and Comprehensive Climate Action Plans; https://metrocouncil.org/Planning/Climate/Climate-Pollution-Reduction-Grant.aspx
Ramsey County Climate Equity Plan; https://www.hennepin.us/en/climate-action
City of Maplewood 2040 Comprehensive Plan; https://maplewoodmn.gov/1718/2040-Comprehensive-Plan

9 US Census accessed via Deloitte Data USA: https://datausa.io/profile/geo/Maplewood-mn

10 US Census, On The Map: https://onthemap.ces.census.gov/

11 AAA "Your Driving Costs, 2023": https://newsroom.aaa.com/wp-content/uploads/2023/08/YDC-Fact-Sheet-FINAL-8.30.23-1.pdf

12 Social Explorer Tables (SE), Environmental Summaries 2011, Social Explorer; National Historical Geographic Information System (NHGIS)

13 US Census https://data.census.gov/

14 Metropolitan Council population projections for City of Maplewood; https://stats.metc.state.mn.us/profile/detail.aspx?c=02394586

15 TRB *Special Report 298: Driving and the Built Environment: Effects of Compact Development on Motorized Travel, Energy Use, and CO2 Emissions* Impacts of Land Use Patterns on Vehicle Miles Traveled Evidence from the Literature https://www.nap.edu/read/12747/chapter/5#88

16 New York Times, "E.V.s Start With a Bigger Carbon Footprint. But That Doesn't Last"; https://www.nytimes.com/2022/10/19/business/electric-vehicles-carbon-footprint-batteries.html

17 Continental Battery Systems, Can Lithium Batteries Be Recycled; https://www.continentalbattery.com/blog/can-lithium-batteries-be-recycled

18 Michael L. Machala Et Al, Stanford University "Life cycle comparison of industrial-scale lithium-ion battery recycling and mining supply chains"; https://21672590.fs1.hubspotusercontent-na1.net/hubfs/21672590/Stanford%20University%20Life%20cycle%20comparison%20of%20industrial-scale%20lithium-ion%20battery%20recycling%20and%20mining%20supply%20chains.pdf

19 Scientific American, "Recycled Lithium-Ion Batteries Can Perform Better Than New Ones": https://www.scientificamerican.com/article/recycled-lithium-ion-batteries-can-perform-better-than-new-ones/

20 EV registration data reported by state of Minnesota; https://mn.gov/puc/activities/economic-analysis/electric-vehicles/

21 US Department of Energy Biodiesel Benefits and Considerations: https://afdc.energy.gov/fuels/biodiesel-benefits

22 Catogen, "Benefits of Hybrid Cars for Fuel Consumption and Cost of Ownership" https://catagen.com/2022/08/31/blog-benefits-of-hybrid-cars-for-fuel-consumption-and-cost-of-ownership/

23 Electrifying, "What is a self charging hybrid": https://www.electrifying.com/blog/knowledge-hub/what-is-a-self-charging-hybrid

24 Consumer Reports, "Electric vehicle owners spending half as much on maintenance compared to gas-powered vehicle owners, finds new CR analysis": https://advocacy.consumerreports.org/press_release/electric-vehicle-owners-spending-half-as-much-on-maintenance-compared-to-gas-powered-vehicle-owners-finds-new-cr-analysis/

Buildings and Energy

1 City of Maplewood 2022 GHG Inventory Report; https://view.publitas.com/palebluedot/maplewood-2022-ghg-inventory-report/

2 City of Maplewood Climate Action Baseline Assessment, 2024: https://view.publitas.com/palebluedot/city-of-maplewood-climate-action-baseline-assessment/

3 City of Maplewood Community Input Survey Report, 2024; https://view.publitas.com/palebluedot/maplewood-community-input-summary-report

4 US Department of Energy, Residential Program Solution Center: https://rpsc.energy.gov/energy-data-facts

5 Social Explorer, Market Profile Data 2022 based on US Census American Census Survey; https://www.socialexplorer.com/data/EASI2025/documentation/7933fdf1-4c9b-4cb2-ad82-5a8e949ac78f

6 US Census Bureau ACS 5 year estimates

7 State of Minnesota House of Representatives, "State establishes standard of 100% carbon-free electricity by 2040" https://www.house.mn.gov/NewLaws/story/2023/5473

8 Columbia University, Switching from Gas to Electric Stoves Cuts Indoor Air Pollution; https://www.publichealth.columbia.edu/news/switching-gas-electric-stoves-cuts-indoor-air-pollution

9 American Lung Association, Health Impacts of Combustion in Homes; https://www.lung.org/policy-advocacy/healthy-air-campaign/healthy-efficient-homes/residential-combustion

10 PSE Healthy Energy, Natural Gas and Indoor Air Pollution in North America; https://www.psehealthyenergy.org/work/l-gas-and-indoor-air-pollution-in-north-america/

11 US Department of Energy, Benefits of Residential Solar Electricity: https://www.energy.gov/energysaver/benefits-residential-solar-electricity

12 ACEEE Understanding Energy Affordability: https://www.aceee.org/sites/default/files/energy-affordability.pdf

13 City of Maplewood Renewable Energy Potentials Study, 2023: https://view.publitas.com/palebluedot/city-of-Maplewood-renewable-energy-potentials-study-_v8kma98_4kb

14 Xcel Energy, Renewable Energy Opportunities: https://mn.my.xcelenergy.com/s/renewable

15 US Department of Energy, Renewable Energy Certificates: https://www.epa.gov/green-power-markets/renewable-energy-certificates-recs

16 Savings calculated on Maplewood average commercial electricity rate as reported by Electricity Local (https://www.electricitylocal.com/) and Natural Gas Local (https://naturalgaslocal.com/)

17 US Department of Energy, Solar and Resilience Basics: https://www.energy.gov/eere/solar/solar-and-resilience-basics

18 US Department of Energy, "How Distributed Energy Resources Can Improve Resilience in Public Buildings: Three Case Studies and a Step-by-Step Guide": https://www.energy.gov/scep/slsc/articles/how-distributed-energy-resources-can-improve-resilience-public-buildings-three

Waste Management

1 City of Maplewood 2022 GHG Inventory Report; https://view.publitas.com/palebluedot/maplewood-2022-ghg-inventory-report/

2 City of Maplewood Climate Action Baseline Assessment, 2024: https://view.publitas.com/palebluedot/city-of-maplewood-climate-action-baseline-assessment/

3 City of Maplewood Community Input Survey Report, 2024; https://view.publitas.com/palebluedot/maplewood-community-input-summary-report

4 NRDC, Tackling Food Waste in Cities: A Policy and Program Toolkit; https://www.nrdc.org/resources/tackling-food-waste-cities-policy-and-program-toolkit

5 US EPA United States 2030 Food Loss and Waste Reduction Goal; https://www.epa.gov/sustainable-management-food/united-states-2030-food-loss-and-waste-reduction-goal

6 Minnesota Chamber of Commerce, WasteWise program: https://www.mnchamber.com/sites/default/files/Waste%20Wise%20Annual%20Report.pdf

7 North Carolina State University Extension, How Your Business Can Cut Costs by Reducing Waste: https://content.ces.ncsu.edu/how-your-business-can-cut-costs-by-reducing-wastes

8 ReFed, A Roadmap To Reduce US Food Waste by 20 Percent: https://www.refed.com/downloads/ReFED_Report_2016.pdf

9 Agency for Toxic Substances and Disease Registry: https://www.atsdr.cdc.gov/hac/landfill/html/ch2.html

10 State of Minnesota, 2013 Statewide Waste Characterization; https://www.pca.state.mn.us/sites/default/files/w-sw1-60.pdf

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Appendix B:

Project Costs & Savings

The following documents the calculations and source references used for estimating the potential cumulative communitywide cost savings of the actions included in the Climate Mitigation Plan.

Summary of Estimated Cumulative Savings of Modeled Reductions

City of Maplewood

Notes

Transportation

VMT Reductions (public transit, bike, walk, etc)

Formula:

Cumulative vehicle miles saved x Average vehicle operation cost per mile = Gross VMT savings

	VMT saved (goal year)	28,488,781
	Cumulative vehicle miles saved (through goal year):	170,932,688
1	Average vehicle operating cost per mile:	$0.770
	Gross VMT savings	**$131,618,170**

1 Savings per VMT based on AAA estimates https://newsroom.aaa.com/wp-content/uploads/2023/08/YDC-Fact-Sheet-FINAL-8.30.23-1.pdf , https://www.slashgear.com/aaa-says-it-costs-about-74-cents-per-mile-to-drive-23496316/ https://www.thesimpledollar.com/save-money/is-it-really-cheaper-to-ride-the-bus/

Increased Public Transit Use

Formula:

Cumulative increased public transit mileage x Average public transit cost per mile = Increased spending on public transit

	Increased public transit miles (goal year)	12,242,708
	Cumulative increased public transit miles (through goal year):	73,456,250
2	Annual increased public transit pass costs (goal year):	-$1,751,071
	Cumulative increased public transit pass costs (through goal year):	-$10,506,423
	Increased spending on public transit	**-$10,506,423**

2 Annual increased public transit pass costs calculated based on increased percentage of population using public transit (target increased public transit percentage) multiplied by cost of monthly transit pass. Negative numbers indicate increased consumer spending. https://www.census.gov/programs-surveys/sis/resources/data-tools/quickfacts.html https://www.metrotransit.org/go-to-card

EV and Alt Fuel Conversions

Formula:

Cumulative VMT converted to EV/alt fuel x Average vehicle operation cost savings per mile = Gross EV VMT savings - Gross EV purchase spending difference = Net EV VMT Savings

	VMT converted to EV/Alt fuel (goal year)	28,488,781
	Cumulative VMT converted to EV/alt fuel (through goal year)	170,932,688
3	Average fuel savings per mile:	$0.123
4	Average vehicle maintenance savings per mile:	$0.041
	Cumulative Gross EV VMT savings (through goal year)	$27,957,743
5	Spending difference on EV purchase vs ICE purchase per mile driven	-$0.05
	New electric vehicle purchases	6,536
	Gross EV purchase spending difference (through goal year)	-$9,307,855
	Net EV VMT savings	**$18,649,888**

3 Fuel Savings per VMT based on average reported gasoline costs (https://gasprices.aaa.com/state-gas-price-averages/) divided by current average MPG (Federal Highway Administration: https://www.fhwa.dot.gov/policyinformation/quickfinddata/qftravel.cfm) compared against average fuel cost per mile using current kWh rate (https://www.electricitylocal.com/) and average kWh/100 mile data (https://www.fueleconomy.gov/feg/PowerSearch.do?action=noform&path=1&year1=2017&year2=2019&vtype=Electric)

4 Maintenance savings per mile based on US Department of Energy FOTW #1190, June 14, 2021: Battery-Electric Vehicles Have Lower Scheduled Maintenance Costs than Other Light-Duty Vehicles: https://www.energy.gov/eere/vehicles/articles/fotw-1190-june-14-2021-battery-electric-vehicles-have-lower-scheduled

5 Average EV purchase price increse per vehicle on Kelly Blue Book average EV purchase price compared to average gasoline vehicle purchase price (https://www.coxautoinc.com/market-insights/february-2025-atp-report/) with available local, state, or federal tax credits applied. The total cost difference is then divided by an assumed average EV lifespan of 150,000 miles to arrive at an estimated cost difference per mile driven. Negative numbers indicate increased consumer spending.

Potential Total Cumulative Transportation Cost Savings

Formula:

Transportation sector savings - Transportation sector cost increases = Potentail Total Cumulative Transportation Cost Savigns

Transportation Sector Savings	
Gross VMT savings	$131,618,170
Gross EV VMT savings	$27,957,743
Total Gross Transportation Savings	$159,575,913
Transportation Sector Cost Increases	
Increased spending on public transit	-$10,506,423
Gross EV purchase spending difference	-$9,307,855
Total Gross Transportation Cost Increases	-$19,814,278
Potentail Total Cumulative Transportation Cost Savings	**$139,761,635**

Summary of Estimated Cumulative Savings of Modeled Reductions
City of Maplewood

Energy - Residential

Residential Savings - grid electricity to customer owned solar

Formula:

Cumulative kWh converted to solar x Average cost savings per kWh = Residential solar savings

Notes		
	Residential kWh converted (goal year)	8,713,986
	Cumulative residential kWh converted (through goal year)	52,283,914
	Average net solar cost savings per solar kWh	$0.075
6a	Average solar installation cost per KW	$3,160.00
7	Average kWh produced annually per solar pv KW installed	1,287
	Estimated installed solar PV KW installed (goal year)	6,771
	Estimated total solar installation costs	$21,395,645
8	Est average lifespan kWh produced per solar pv KW installed	38,429
8	Estimated cumulative lifespan kWh produced	260,194,167
9	Estimated value of cumulative lifespan kWh produced	$41,005,508
	Average solar cost savings per kWh produced	$0.075
	Residential solar savings	**$3,940,443**

6a Recent average cost per KW is 1000x the per watt cost reported by Solar Reviews for a 6KW array https://www.solarreviews.com Potential savings from tax credits, depreciation, or grants are not included and would reduce these costs.

7 Calculations are based on the geographic energy production factor (https://www.nrel.gov/docs/fy04osti/35297.pdf) multiplied by an average performance ratio of 78% (https://www.nrel.gov/docs/fy13osti/57991.pdf)

8 Based on an assumed average useful life of 32.5 years according to NREL research (https://www.nrel.gov/analysis/tech-footprint.html) with an average degradation rate of 0.5% (https://www.nrel.gov/state-local-tribal/blog/posts/stat-faqs-part2-lifetime-of-pv-panels.html)

9 Svings per kWh based on average electricity cost per kWh (https://www.electricitylocal.com/) calculated to the solar array's midlife (year 16) using an estimated average electrical cost inflation of 2% annually

Residential Savings - utility purchased renewable

Formula:

Cumulative kWh converted to utility purchased renewable x Average cost/savings per kWh = Residential utility purchased cost/savings

Notes		
	Residential kWh converted (goal year)	8,713,986
	Cumulative residential kWh converted (through goal year)	52,283,914
11	Average utility purchased cost/savings per kWh	-$0.013
	Residential utility purchased cost/savings	**-$663,483**

11 The average cost/savings per kWh of utility purchased renewable energy subscription is based on utility fee information. Negative numbers indicate increased consumer spending

Residential Savings - electrical energy efficiency

Formula:

Cumulative kWh saved from energy efficiency x Average cost per kWh = Gross Residential electrical energy efficiency savings - Residential Efficiency Upgrade Costs = Net Residential Electrical Energy Efficiency Savings

Notes		
	Residential kWh saved (goal year)	5,809,324
	Cumulative residential kWh saved (through goal year)	34,855,943
12a	Average cost per kWh	$0.115
	Gross Residential electrical energy efficiency savings	**$4,001,462**
13	Residential Electrical Efficiency Upgrade Costs	-$3,521,287
	Net Residential Electrical Energy Efficiency Savings	**$480,175**

12a Energy efficiency savings per kWh saved based on average electricity cost per kWh: https://www.electricitylocal.com/

13 Assumed energy efficiency upgrade costs are calculated assuming an average ROI of12% (https://www.aceee.org/blog/2019/05/existing-homes-energy-efficiency) Negative numbers indicate increased consumer

Residential Savings - natural gas energy efficiency

Formula:

Cumulative therms saved from energy efficiency x Average cost per therm = Gross Residential natural gas energy efficiency savings - Residential Natural Gas Efficiency Upgrade Costs = Net Residential Electrical Natural Gas Efficiency Savings

14	Residential therms saved (goal year)	575,446
14	Cumulative residential therms saved (through goal year)	3,452,674
15	Average cost per therm	$1.106
	Gross Residential natural gas energy efficiency savings	**$3,818,657**
14, 16	Residential Natural Gas Efficiency Upgrade Costs	-$3,360,418
	Net Residential Electrical Natrual Gas Efficiency Savings	**$458,239**

14 Includes fuel switching from fossil fuel heat to electric

15 Energy efficiency savings for natural gas is based on average natural gas cost per therm https://naturalgaslocal.com/

16 Assumed energy efficiency upgrade costs are calculated assuming an average ROI of12% (https://www.aceee.org/blog/2019/05/existing-homes-energy-efficiency) Negative numbers indicate increased consumer spending

Potential Total Cumulative Residential Energy Cost Savings

Formula:

Residential solar savings + Residential community solar savings + Residential utility purchased renewable + Residential electrical efficiency savings + Residential natural gas energy efficiency savings - Residential increased electrical costs = Potential Total Cumulative Residential Energy Savings

Residential solar savings	$3,940,443
Residential utility purchased renewable cost/savings	-$663,483
Residential electrical efficiency savings (net)	$480,175
Residential natural gas energy efficiency savings (net)	$458,239
Potentail Total Cumulative Residential Energy Savings	**$4,215,375**

Summary of Estimated Cumulative Savings of Modeled Reductions

City of Maplewood

Notes

Energy - Non Residential

Non-Residential Savings - grid electricity to solar

Formula:

Cumulative kWh converted to solar x Average cost savings per kWh = Non-Residential solar savings

	Non-Residential kWh converted (goal year)	24,708,116
	Cumulative Non-Residential kWh converted (through goal year)	148,248,695
	Average solar cost savings per kWh	$0.039
6b	Average solar installation cost per KW	$2,770.00
7	Average kWh produced annually per solar pv KW installed	1,287
	Estimated installed solar PV KW installed (goal year)	19,198
	Estimated total solar installation costs	$53,179,084
8	Estimated average lifespan kWh produced per solar pv KW installed	38,429
8	Estimated cumulative lifespan kWh produced	737,768,898
9	Estimated value of cumulative lifespan kWh produced	$82,002,926
	Average solar cost savings per kWh produced	$0.039
	Non-Residential solar savings	**$5,791,918**

6b Recent average cost per KW is 1000x the per watt cost reported by Solar Reviews for a 10KW array https://www.solarreviews.com Potential savings from tax credits, depreciation, or grants are not included and would reduce these costs.

7 Calculations are based on the geographic energy production factor (https://www.nrel.gov/docs/fy04osti/35297.pdf) multiplied by an average performance ratio of 78% (https://www.nrel.gov/docs/fy13osti/57991.pdf)

8 Based on an assumed average useful life of 32.5 years according to NREL research (https://www.nrel.gov/analysis/tech-footprint.html) with an average degradation rate of 0.5% (https://www.nrel.gov/state-local-tribal/blog/posts/stat-faqs-part2-lifetime-of-pv-panels.html)

9 Svings per kWh based on average electricity cost per kWh (https://www.electricitylocal.com/) calculated to the solar array's midlife (year 16) using an estimated average electrical cost inflation of 2% annually

Non-Residential Savings - utility purchased renewable

Formula:

Cumulative kWh converted to utility purchased renewable x Average cost/savings per kWh = Non-Residential utility purchased cost/savings

	Non-Residential kWh converted (goal year)	24,708,116
	Cumulative Non-Residential kWh converted (through goal year)	148,248,695
11	Average utility purchased cost/savings per kWh	-$0.013
	Non-Residential utility purchased cost/savings	**-$1,881,276**

11 The average cost/savings per kWh of utility purchased renewable energy subscription is based on utility fee information. Negative numbers indicate increased consumer spending

Non-Residential Savings - electrical energy efficiency

Formula:

Cumulative kWh saved from energy efficiency x Average cost per kWh = Gross Non-Residential electrical energy efficiency savings - Non-Residential Efficiency Upgrade Costs = Net Non-Residential Electrical Energy Efficiency Savings

	Commercial kWh saved (goal year)	16,472,077
	Cumulative commercial kWh saved (through goal year)	98,832,464
12b	Average cost per kWh	$0.081
	Gross Commercial electrical energy efficiency savings	**$8,002,135**
13	Commercial Electrical Efficiency Upgrade Costs	-$7,041,879
	Net Commercial Electrical Energy Efficiency Savings	**$960,256**

12b Energy efficiency savings per kWh saved based on average electricity cost per kWh reported for commercial and industrial with a weighted average (2/3rds commercial rate, 1/3rd industrial rate) reflecting typical non-residential electric consumption paterns: https://www.electricitylocal.com/

13 Assumed energy efficiency upgrade costs are calculated assuming an average ROI of12% (https://www.aceee.org/blog/2019/05/existing-homes-energy-efficiency) Negative numbers indicate increased consumer spending

Non-Residential Savings - natural gas energy efficiency
Formula:

Cumulative therms saved from energy efficiency x Average cost per therm = Gross Non-Residential natural gas energy efficiency savings - Non-Residential Natural Gas Efficiency Upgrade Costs = Net Non-Residential Electrical Natural Gas Efficiency Savings

14	Non-Residential therms saved (year 10)	526,816
14	Cumulative Non-Residential therms saved	3,160,893
15	Average cost per therm	$0.522
	Gross Non-Residential natrual gas energy efficiency savings	**$1,649,986**
14, 16	Non-Residential Natural Gas Efficiency Upgrade Costs	-$1,451,988
	Net Non-Residential Natural Gas Energy Efficiency Savings	**$197,998**

14 Includes fuel switching from fossil fuel heat to electric

15 Energy efficiency savings for natural gas is based on average natural gas cost per therm https://naturalgaslocal.com/

16 Assumed energy efficiency upgrade costs are calculated assuming an average ROI of12% (https://www.aceee.org/blog/2019/05/existing-homes-energy-efficiency) Negative numbers indicate increased consumer spending

Potential Total Cumulative Non-Residential Energy Cost Savings

Formula:

Non-Residential solar savings + Non-Residential community solar savings + Non-Residential utility purchased renewable + Non-Residential electrical efficiency savings + Non-Residential natural gas energy efficiency savings - Non-Residential increased electrical costs = Potential Total Cumulative Non-Residential Energy Savings

Non-Residential solar savings	$5,791,918
Non-Residential utility purchased renewable cost/savings	-$1,881,276
Non-Residential electrical efficiency savings	$960,256
Non-Residential natural gas energy efficiency savings	$197,998
Potentail Total Cumulative Non-Residential Energy Savings	**$5,068,897**

Potential Total Cumulative Energy Cost Savings (Residential + Non-Residential)

Formula:

Energy sector savings - Energy sector cost increases = Potentail Total Cumulative Energy Cost Savigns

Energy Sector Savings	
Total solar energy savings	$9,732,361
Total energy efficiency savings - electricity	$12,003,597
Total energy efficiency savings - natrual gas	$5,468,643
Total Gross Energy Savings	$27,204,602
Energy Sector Cost Increases	
Total solar PV installation costs	(included in estimated Total Solar Energy Savings)
Total utility purchased renewable cost/savings	-$2,544,759
Total energy efficiency upgrade costs - electricity	-$10,563,166
Total energy efficiency upgrade costs - natrual gas	-$4,812,406
Total Gross Energy Cost Increases	-$17,920,331
Potentail Total Cumulative Energy Cost Savings	**$9,284,272**

Summary of Estimated Cumulative Savings of Modeled Reductions
City of Maplewood

Notes

Solid Waste - Residential

Residential savings - Food Waste Reduction

Formula:

Cumulative tons of food waste reduced and diverted x Average cost savings per ton = Residential food waste savings

	Residential food waste reduced (goal year)	1,639
	Cumulative residential food waste reduced (through goal year)	9,837
17	Average cost savings per ton reduced	$2,469
	Residential food waste savings	**$24,286,997**

17 Value per ton of residential food waste avoided is based on average for Prevent and Recover strategies by ReFED "A Roadmap To Reduce U.S. Food Waste" https://refed.com/downloads/the-roadmap-to-reduce-u-s--food-waste/ . Food waste share of total organics diverted is calculated based on available waste sort data (see Baseline Assessment document)

Potential Total Cumulative Residential Solid Waste Reduction Cost Savings

Residential food waste savings	**$24,286,997**

Notes

Solid Waste - Non-Residential

Non-Residential savings - Solid Waste Reduction

Formula:

Cumulative participant/years x Average reported cost savings per participant/year = Non-Residential solid waste savings

	Participating businesses (goal year)	5
	Cumulative participant/years (through goal year)	55
18	Average cost savings per participant/year	$475
	Commercial solid waste savings	**$156,750**

18 Savings per business engaged in waste reduction programs are based on MN WasteWise reported average business savings ($431) escallated to 5 year (mid point) Cumulative savings assume businesss reduction strategies remain in force. See https://www.mnchamber.com/your-opportunity/waste-wise

Potential Total Cumulative Solid Waste Savings

Formula:

Residential Food Waste Savings + Commercial Solid Waste Savings + Commercial Food Waste Savings = Potentail Total Cumulative Solid Waste Savings

Residential Food Waste Savings	$24,286,997
Non-Residential Solid Waste Savings	$156,750
Potentail Total Cumulative Solid Waste Savings	**$24,443,747**

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Appendix C:

Acknowledgements

We are deeply grateful for the community collaboration and input that went into this plan. Below are some of the main contributors that made the City of Maplewood's Climate Mitigation Plan possible:

Climate Mitigation Planning Team - Volunteers

Richard Arnebeck	Friends of Maplewood Nature	David Lates	Maplewood Environment and Natural Resources Commission
Austin Bell	Resident	Nicole Maras	Ramsey-Washington Metro Watershed District
Ben Elle	Resident	William Poppert	Resident
Benjamin Guell	Maplewood Environment and Natural Resources Commission	Ananth Shankar	Maplewood Community Design Review Board
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Suzanne Kienietz	Resident	Joy Tkachuck	Resident
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Steve Love	City of Maplewood, Public Works Director	Colin Vue	City of Maplewood, Management Intern

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